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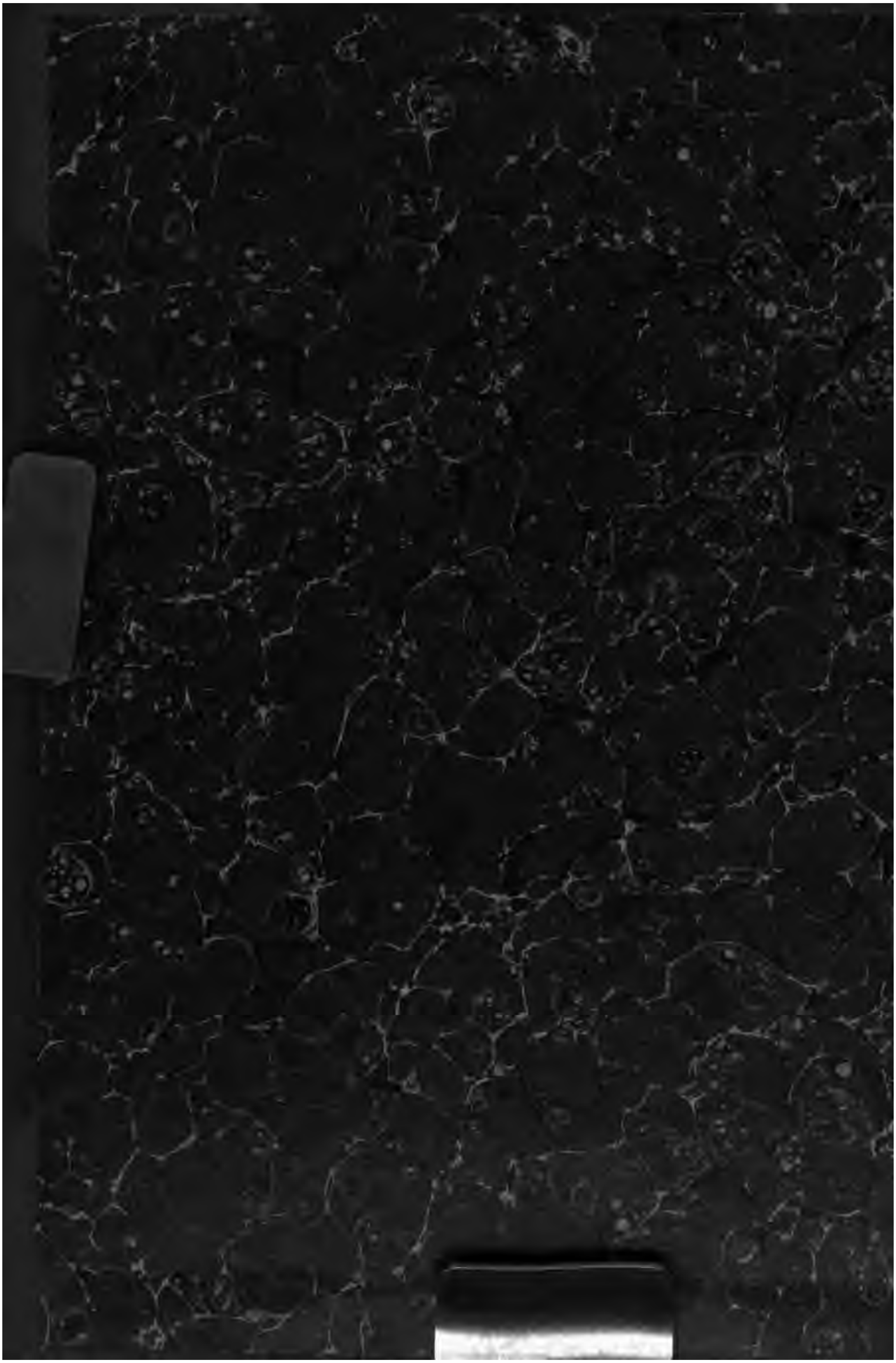

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RAPPORT

DES

COMMISSAIRES

DES

TRAVAUX PUBLICS

POUR

1851.

Imprimé par ordre de l'honorable Assemblée Législative.

QUÉBEC:
IMPRIMERIE DE LOUIS PERRAULT,
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RAPPORT.

DÉPARTEMENT DES TRAVAUX PUBLICS,

QUÉBEC, août 1852.

A Son Excellence le très-honorable James, Comte d'Elgin et Kincardine, Gouverneur-Général de l'Amérique Britannique du Nord, etc., etc., etc.

QU'IL PLAISE A VOTRE EXCELLENCE :

En conformité aux dispositions de l'acte 9 Vict., chap. 37, sec. 14, statuant que les commissaires des Travaux Publics feront annuellement " rapport sur tous les " travaux sous leur contrôle ; montrant l'état de chaque ouvrage, le montant des " sommes perçues et dépensées sur les dits travaux, avec tous autres renseignemens " qui peuvent être requis." Les soussignés ont l'honneur de soumettre ce rapport général, accompagné d'un appendice, dans lequel sont compris les tableaux suivans, savoir :—

No. 1.—Tableau des *travaux productifs du Canada,* sous le contrôle du département des Travaux Publics, faisant voir ce qu'a coûté la construction d'iceux, à venir au premier janvier 1852, et la dépense encourue pendant l'année 1851.—Aussi les frais encourus pour la collection, les réparations, et la régie de ces travaux, avec le montant total du revenu, et le profit net, pour 1851.

No. 2.—Tableau des *travaux improductifs du Canada* à la charge du département des Travaux Publics, montrant les montans dépensés sur iceux par ce département durant l'année 1851, et le total des montans dépensés à venir au premier janvier 1852.

No. 3.—Tableau des *ouvrages publics qui ont été vendus ou abandonnés par le gouvernement* et de ceux qu'on a intention de vendre ou d'abandonner, montrant les dépenses encourues pour leur construction par le département des Travaux Publics, et les montans pour lesquels ils ont été vendus.—Aussi, le revenu, si aucun tel revenu en est provenu, pour l'année 1851.

No. 4.—Tableau des dépenses faites par le département des Travaux Publics, durant l'année 1851, sur les *phares provinciaux* servant à la navigation intérieure.

No. 5.—Tableau des montants payés pour dommages adjugés par les arbitres durant l'année 1851, montrant les sommes réclamées et les sommes adjugées.—Aussi les montants payés aux arbitres, etc., pour services et dépenses.

No. 6.—Tableau montrant le montant total dépensé par le département des Travaux Publics, durant l'année 1851, tel qu'énuméré dans les tableaux 1, 2, 3, 4 et 5 précédents.

No. 7.—Tableau des pouvoirs d'eau, etc., loués sur les différens canaux provinciaux, avec les noms des locataires, la désignation de la machine, etc., et le montant des rentes annuelles.

No. 8.—Tableau des canaux et écluses du Canada, montrant où ils sont situés, la longueur et la largeur des canaux, et le nombre d'écluses, avec leurs dimensions le montant de l'éclusage, etc.

No. 9.—Tableau montrant les montans appropriés durant la dernière session de la législature et la balance des appropriations antérieures, en disponibilité sur chacun des dits ouvrages,—le montant dépensé sur la dite somme à venir jusqu'au premier janvier 1852,—le montant non encore dépensé,—et les sommes qui seront requises ultérieurement pour compléter ces travaux ; et finalement, la proportion de telle somme nécessaire pour faire face aux dépenses de l'année courante.

No. 10.—Extrait des ouvrages actuellement en contemplation, le coût d'iceux, et la proportion des dits ouvrages qui nécessiterait des dépenses durant le reste de cette année et durant l'année 1853, dans le cas où la législature ferait une appropriation à cet effet.

No. 11.—Tableau comparatif du tonnage sur les canaux du St. Laurent, tant en montant qu'en descendant, pendant les années 1851 et 1852, jusqu'au 12 juillet.

CANAL WELLAND.

Ce canal continue à être en excellente condition et se trouve maintenant presqu'entièrement complété. Le principal ouvrage qui reste à faire, en vertu des contrats primitifs, est l'élargissement et le foncement du canal, de manière à l'adapter au niveau du lac Erié, lorsqu'il sera nécessaire de l'adopter comme point culminant. Pour effectuer cela, le contracteur, M. French, s'occupe activement à creuser le fond du canal.

Un montant considérable a été inévitablement dépensé durant l'année en travaux de réparation, comme pour donner de la force aux terrassemens, élever les bords et en couvrir la surface de pierre, réparer les chemins de hâlage et les ponts placés sur ces chemins, etc., tout cela est dû à l'augmentation extraordinaire et continuelle du trafic passant par le canal.

Les portes des écluses, construites depuis à peu près huit à dix ans, ont montré récemment quelques signes de détérioration, de sorte qu'il a été nécessaire de se pourvoir de plusieurs paires de nouvelles portes, qu'on pourra substituer sans délai à celles qui peuvent manquer pour des causes naturelles, où à celles qui seraient détruites par accident ou négligence ; pas moins de sept paires ont été perdues par négligence depuis le dernier rapport. Mais chaque fois qu'on a pu constater que la destruction des portes était due à la négligence ou au manque d'attention de la part de l'équipage, on a fait payer au vaisseau les frais de réparation.

Les portes de garde, à Allanburg, recommandées instamment dans notre dernier rapport, et dont l'érection a été autorisée par la législature, sont maintenant complétées, et contribuent beaucoup à la sûreté du canal.

Pour ne pas nuire au commerce durant leur construction, il fut nécessaire de réparer les deux vieilles écluses, de manière à les mettre en état de faire passer les vaisseaux : cette réparation occasionna une dépense de £978 11 3, attendu qu'elles étaient extrêmement détériorées.

La détention sérieuse à laquelle étaient assujettis les vaisseaux, en conséquence du manque de quais ou jetées à la tête des écluses (tel qu'expliqué dans notre rapport de l'année dernière), a été obviée jusqu'à un certain point par la construction de courtes jetées, là où l'on éprouvait le plus de délai. Cette dépense, étant considérée comme dépense d'entretien et de régie, a été faite à même le revenu des droits de péage; mais afin de faire disparaître entièrement les causes de détention, et rencontrer les exigences actuelles du commerce, il est indispensablement nécessaire que les quais ou jetées soient continués d'une écluse à l'autre, de manière à former, pour bien dire, un second chemin de hâlage, par le moyen duquel on diminuerait considérablement le tems nécessaire pour passer l'écluse. Cela coûterait environ £10,500, et il est respectueusement recommandé que cette dépense soit faite, puisqu'il est certain que le revenu qu'on retirera du canal augmentera à raison des facilités qui seront offertes au commerce. Pour assurer le même objet, c'est-à-dire, le passage rapide dans le canal, il est devenu nécessaire d'avoir des lumières la nuit aux écluses et aux ponts.

Les écluses d'entrée ont, depuis un certain nombre de saisons, été éclairées comme le sont celles des canaux du St. Laurent, à travers lesquelles les steamers passent de nuit, et sur les représentations des propriétaires de diverses lignes de vaisseaux, les soussignés ont décidé que les écluses et ponts du canal Welland seraient éclairés cette année. Les soussignés ont été pressés d'adopter la proposition d'une compagnie américaine, offrant d'entreprendre de faire les travaux nécessaires pour éclairer par le gaz St. Catherine et Thorold, pourvu que le contrat pour l'éclairage des écluses entre ces villages leur fût garanti pour un certain nombre d'années, à tant par écluse.

Les soussignés, étant favorables à ce projet, offrirent de contracter avec la compagnie, moyennant tant par mille pieds de gaz, le taux ne devant pas excéder les taux courants payés à Toronto; mais la compagnie, désirant faire un contrat d'une autre nature, les arrangemens ne sont pas encore conclus. En attendant, toutefois, les soussignés ont pourvu à ce que les écluses fussent éclairées à l'huile.

On a compris dans l'estimé, tableau n°. 9, les sommes nécessaires pour l'érection de maisons et bureaux pour les collecteurs au Port Colborne et au Port Dalhousie; le petit bureau qu'il y a au premier port est non seulement insuffisant mais en ruine, et il n'en existe aucun au Port Dalhousie. Le service des collecteurs de ces ports, tant la nuit que le jour, les montans considérables collectés par eux, exigent que ces officiers soient pourvus de bureaux convenables.

La bâtisse qu'il y a à Ste. Catherine, appelée le bureau du collecteur, mais dans laquelle se trouvent réunis le collecteur de douane, avec ses commis et autres officiers, le surintendant du canal, commis, ingénieur, etc., est non seulement insuffisante, mais se trouve aussi presque en ruine. Depuis qu'elle a été érigée, la rue a été baissée de dix à douze pieds; et quoiqu'on ait laissé un banc autour de la bâtisse, les fondations ont été affectées sérieusement et les murs sont crevassés en tous sens; de plus, la corporation municipale requiert maintenant que le banc de terre laissé en front de l'édifice soit ôté parce qu'il obstrue la rue. Les soussignés ont donc compris dans l'estimé qu'ils ont l'honneur de soumettre, une somme pour la construction de bureaux neufs et convenables, et ils pensent qu'on trouvera probablement un site convenable pour cet objet sur la propriété du canal ; et dans ce cas, on pourrait disposer avantageusement du lot occupé actuellement à Ste Catherine, et on pourrait en appliquer le revenu à l'érection du nouveau bureau.

Lors de leur dernière inspection de l'ouvrage, les soussignés ont remarqué que la ligne du canal allait être traversée par deux chemins à lisses maintenant en construction dans cette section de la province ; le railroad de Brantford et Buffalo, et une continuation du Grand Railroad de l'Ouest de Hamilton à la frontière de Niagara ; le premier devant traverser le canal deux fois et le second une fois.

La manière dont les propriétaires du railroad de Brantford ont proposé de traverser le canal près de l'écluse de Port Colborne, a été considérée comme sujette à objection et tendant à obstruer la navigation ; la traverse à l'autre point n'a rien d'objectionable.

La manière dont on proposait que le Grand Chemin de l'Ouest traverserait le canal, est considérée par les Commissaires comme n'étant nullement désirable, et ils ont communiqué leurs vues aux directeurs de ces chemins, et l'affaire est maintenant entre les mains de leurs ingénieurs et de l'officier du canal, qui a reçu les instructions nécessaires, et on espère que la difficulté sera promptement réglée.

Les revenus du canal continuent à augmenter. En 1850, le canal s'ouvrit le 1er avril et fut fermé le 12 décembre, donnant 255 jours de navigation. En 1851, il fut ouvert le 25 mars et fermé le 12 décembre, donnant 261 jours de navigation. Cette année le canal a été ouvert le 13 avril.

Les droits de péage augmentent constamment :

En 1849, le montant total s'éleva à........	£34,741	18	8
En 1850, do do	37,925	17	7
En 1851, do do	50,460	6	8

Montrant une augmentation d'environ 10 par cent en 1850 sur 1849, et de 33 par cent en 1851 sur 1850, tandis que les recettes, à venir au 1er août 1852, s'élèvent à £23,352 7s. 5d., et à venir à la même époque l'année dernière, £21,154 11s. 5d.

CANAUX DU SAINT LAURENT.

La navigation de ces canaux a été ouverte le 25 avril, et elle a continué sans interruption jusqu'au 25 novembre, faisant 215 jours d'affaires en 1851.

Les Galops.—Ce canal, moyennant de légères réparations, a été tenu en bon ordre durant toute la saison.

Les nouveaux ouvrages autorisés à la dernière réunion du Parlement ont été commencés. Ce sont : 1o. le creusage de la batture à l'entrée supérieure ; 2o. l'extension du quai de la rivière, de manière à faciliter la sortie des vaisseaux en cet endroit ; 3o. la construction d'un quai d'amarrage au dessus de ce quai pour la commodité des vaisseaux employés à touer, et 4o. un mur de revêtement pour protéger la surface intérieure du bord.

Les travaux des dragueurs ont été continués durant toute la saison, jusqu'au premier novembre, époque à laquelle le cure-môle a été remis aux commissaires du havre de Montréal pour le service du lac St. Pierre, auquel il était beaucoup mieux adapté, et des arrangemens ont été faits pour lui en substituer un autre. Le quai de la rivière et le quai d'amarrage ont été mis sous contrat et sont actuellement en voie de construction. On a aussi commencé à faire le mur de revêtement et l'ouvrage n'avance qu'à mesure qu'on y est forcé par la nécessité.

Pointe aux Iroquois.—Ce canal a été entretenu en bon état durant toute la saison, moyennant une bagatelle dépensée en réparations.

Les nouveaux ouvrages autorisés durant la dernière session sont: 1o. le changement à faire à l'écluse de Matilda liée au canal de jonction, pour obtenir trois pieds d'eau de plus; et 2o. des défenses flottantes, (*floating fenders*) pour la protection des vaisseaux qui passent la tranchée appelée *Rock Cut*.

Les changemens mentionnés à l'écluse de Matilda consistent à creuser le fonds de trois pieds, afin d'obtenir neuf pieds d'eau lorsque la rivière est très basse. L'ouvrage a été entrepris par M. B. Chaffey, et conduit sous la surveillance de M. Page, ingénieur résidant du canal de jonction, et nonobstant toutes les difficultés qui semblaient s'opposer à l'exécution d'une entreprise aussi nouvelle, à une époque aussi défavorable, les opérations ont très bien réussi, et tous les ouvrages, y compris la substitution d'une nouvelle paire de portes à celles auparavant en usage, ont été complétés avant qu'aucun des canaux ait été ouvert. Ces portes ont été faites sur un nouveau principe par lequel on réussit à leur donner beaucoup plus de force et de légèreté, malgré qu'elles soient construites avec plus de simplicité et d'économie; d'après l'épreuve qui en a été faite, on a raison d'espérer qu'elles seront une grande amélioration. Les portes de rechange qui se construisent actuellement seront sur le même plan, et on pense qu'en les adoptant généralement sur les grandes écluses des canaux provinciaux, à mesure que celles qui existent s'useront ou seront détruites par accident ou négligence, on diminuera les interruptions auxquelles ces canaux sont sujets.

Les défenses flottantes (*floating fenders,*) n'ont pas été complétées, par suite de la difficulté de se procurer du bois convenable.

Le Canal de Jonction.—Le canal de jonction, destiné à unir les canaux des Galops et de la Pointe des Iroquois, et obvier aux obstacles que ces canaux ont présentés par le passé, chaque fois que la rivière devenait très basse, a été mis sous contrat l'automne dernière, aussitôt que l'inspection et les plans nécessaires eurent été faits. Durant l'hiver dernier, cependant, les contracteurs manquèrent de poursuivre les travaux avec l'activité et l'énergie que ce département considérait nécessaires dans un ouvrage d'aussi grande importance, le contrat leur fut donc ôté et donné à d'autres contracteurs, MM. Milner et Crawford, qui continuent maintenant les travaux d'une manière satisfaisante.

Rapide Plat.—Moyennant une bagatelle dépensée en réparations, ce canal a été entretenu en bon ordre durant toute la saison.

Les nouveaux ouvrages autorisés, sont: 1o. Le quai à l'entrée inférieure, et 2o. le mur de revêtement pour la protection des bords du canal.

Le quai a été mis sous contrat, et l'ouvrage est maintenant bien avancé. Le mur de revêtement a aussi été commencé, et se continue à mesure que les circonstances le requierrent.

Pointe a Farran.—Ce petit canal a été tenu en bon état, moyennant de très légères réparations.

Les nouveaux ouvrages autorisés sont : l'extension des quais aux deux extrémités du canal, afin d'en rendre l'entrée plus sûre. Les deux quais ont été mis sous contrat, et l'ouvrage avance d'une manière satisfaisante.

CANAL DE CORNWALL.

Ce canal a été ouvert le 25 avril et fermé le 12 décembre, et il a été tenu en bon ordre durant toute la saison, sans qu'il y ait eu aucun accident ou qu'un seul vaisseau ait été retardé.

Les nouveaux ouvrages autorisés sur ce canal, sont: 1o. La complétion du mur de revêtement; 2o. La construction de vannes de décharge aux écluses 21, 20, 19, 18, et au bassin de Cornwall au-dessus de l'écluse 17, et 3. Quatre maisons d'écluses.

Le mur de revêtement a été complété, aussi bien que toutes les vannes de décharge, excepté celle de Cornwall. Cette dernière, ainsi que les portes de rechange et les maisons d'écluses, sont sur le point d'être mises sous contrat.

CANAL DE BEAUHARNAIS.

Ce canal a été ouvert le 24 avril et fermé le 25 novembre.

Les nouveaux ouvrages autorisés sont: 1o. La complétion du mur de revêtement; 2o. des vannes de décharge autour de toutes les écluses ; 3o. des quais pour la protection du pont de St. Timothée ; et 4o. un fossé à la Pointe à Chevalier, pour prévenir l'inondation des terres.

Le mur de revêtement a été complété ; les portes d'écluses ont été mises sous contrat, ainsi qu'un jeu de portes de rechange, et des arrangemens sont actuellement en contemplation pour la complétion des autres ouvrages. Des poteaux de défense (*fender posts*) ont pareillement été placés aux écluses, tant pour préserver les vaisseaux contre les accidens que pour la protection des vannes de décharge elles-mêmes.

Des réclamations à un montant considérable pour dommages causés aux terres ont été présentées aux commissaires, par un nombre d'habitans des deux côtés du lac St. François. Il est allégué par ces habitans que depuis la construction de chaussées à la tête du canal de Beauharnais, l'eau du lac s'est élevée beaucoup plus haut qu'elle ne le faisait les années précédentes,—que cette hausse est attribuable aux chaussées, et est la cause de l'inondation d'une quantité de terres basses sur le bord du lac.

Nos prédécesseurs désirant rendre justice à ces habitans, s'ils avaient réellement souffert des dommages, instituèrent une enquête à cet effet; mais les renseignemens qu'on obtint sur le niveau primitif du lac St. François, avant la construction des digues, différèrent beaucoup, et cela, joint à la difficulté de décider si cette élévation de l'eau pouvait être attribuée aux chaussées, a fait que les commissaires enquêteurs, dans leur rapport, n'ont pu en venir à une conclusion, et en conséquence, le département n'a pris aucune action sur le sujet.

Le seul procédé convenable à adopter, paraît être de référer toutes les réclamations à la décision des arbitres provinciaux, ce qui sera fait de bonne heure en septembre, aussitôt qu'on aura reçu le rapport de quelques enquêtes ultérieures qui ont été instituées par les commissaires.

Dans les rapports publiés déjà par ce département, il a été fait allusion aux avantages qui pourront résulter pour cette partie de la province des pouvoirs d'eau presqu'illimités créés par ces chaussées. On a déjà loué un de ces priviléges, et l'on est sur le point d'y établir une manufacture de papier sur une grande échelle, et avec un capital considérable. Deux autres priviléges ont aussi été demandés, et les commissaires ont tout lieu d'espérer que les avantages immenses de cette position seront bientôt appréciés et pleinement réalisés. Il sera nécessaire pour donner de la valeur à ces priviléges, de creuser un canal ou chaussée de moulin commune à tous les lots hydrauliques, et de construire un jeu permanent de portes de garde (*head gates*), pour préserver la chaussée des accidens, aussi bien que pour mettre le contrôle de l'eau entièrement entre les mains des commissaires. Le coût de ces ouvrages est estimé à £1,500.

CANAL DE LACHINE.

Ce canal a été ouvert le 22 avril et fermé le 10 décembre.

Plusieurs ouvrages nouveaux, autorisés durant la dernière session du parlement, ont été complétés sur ce canal l'an dernier; d'autres sont en voie de se faire.

Pour l'avantage des priviléges hydrauliques et la commodité du commerce en général, le mur du côté sud-est du bassin, à Montréal, a été étendu jusqu'au bassin (*dry dock*,) construit par les MM. Tait, et une vaste vanne de décharge de cent pieds de long, pour régler l'eau dans ce bassin, a été construite dans la ligne de la muraille du bassin (*dock-wall.*) Les vieilles écluses ont été converties en vannes de décharge, et par ce moyen on a pu retenir une grande quantité d'eau; le chemin du moulin a été amélioré, et d'autres chemins liés au pont Wellington ont aussi été ouverts. Les terreins nécessaires pour le *dry dock* et le *dock* en bois ont été achetés et ces deux *docks* sont maintenant en voie de construction. Le mur de revêtement a été complété à l'exception de quelques centaines de verges—des pôteaux défense ont été mis à toutes les écluses—le canal à la Côte St. Paul a été agrandi jusqu'à une dimension convenable, et des bureaux ont été bâtis pour le surintendant, le collecteur et le garde-quai. La chaussée autour de l'écluse de garde à

Lachine, destinée à fournir plus d'eau au canal, est sur le point d'être mise sous contrat.

Les commissaires feront remarquer que les réparations requises chaque année pour préserver les bords du canal de Beauharnais et les jetées du bassin en bois sur le canal de Lachine, à raison du dommage que leur fait le passage du bois de chauffage, sont devenues un item considérable de dépense; les droits imposés actuellement sur cet article sont tout-à-fait insuffisans pour y faire face.

Les nouveaux ouvrages qui ont été exécutés sur les canaux du St. Laurent ont produit les plus grands avantages pour la navigation; et ont, en outre, servi matériellement à développer les pouvoirs d'eau, comme le fera voir clairement le tableau des rentes pour priviléges hydrauliques.

Des manufactures de divers genres ont été établis sur ces canaux, et les priviléges dont on peut disposer encore sont destinés à exercer une influence bienfesante sur la prospérité du pays.

Quelques autres ouvrages sembleraient encore nécessaire, tant pour faciliter le passage des vaisseaux que pour pourvoir aux besoins futurs du commerce. Divers accidens arrivés à des vaisseaux entrant dans le canal, à Lachine, démontrent la nécessité d'étendre le quai de l'entrée supérieure à peu près cinq cents pieds plus haut, et d'indiquer le chenal d'une manière plus visible, et faire disparaître les pointes de certaine batture, ce qui coûterait environ £4,000. Des défenses flottantes pour protéger les vaissaux qui passent le *Rock Cut* sont aussi nécessaires. De nouveaux appentis pour la farine sont aussi requis au bassin de Montréal, et avec cela il semblerait désirable d'ériger un hangar où seraient déposés les articles destinés aux différens canaux et aux phares. Ces bâtisses, avec quelques autres ouvrages sur le St. Laurent énumérés dans le tableau n°. 9 et s'élevant à la somme de £14,600, sont des améliorations nécessaires à la navigation; en outre, on recommande qu'une autre somme de £10,000 soit accordée, pour l'acquisition de terreins dans le voisinage du bassin à Montréal, pour y faire des bassins et des docks, parce qu'on s'apercevra bientôt que les accommodations maintenant existantes seront totalement insuffisantes.

LUMIÈRES DU FLEUVE, BOUÉES ET PHARES.

Les lumières, bouées et phares ont été mis sous la surveillance des surintendans locaux des canaux, et ont été tenus en très-bon ordre durant toute la saison.

RIVIÈRE RICHELIEU.

Ecluse et Chaussée a St. Ours.—Cette écluse a été ouverte au commerce le 9 avril et fermée le 22 novembre, sans aucun accident ni interruption, malgré que les murs de l'écluse aient été élevés de près de cinq pieds durant la saison, de manière à obvier aux inconvéniens causés par les inondations du printems, ce qui avait nui beaucoup à la navigation les années précédentes.

CANAL DE CHAMBLY.

Par suite des travaux faits durant l'hiver pour le creusement de ce canal, il fut impossible de les compléter avant le 20 mai, et le canal ne fut ouvert que ce jour-là. Durant l'été dernier, les bords du canal ont été élevés assez haut sur toute la ligne pour procurer un pied d'eau de plus, ce qui, joint à la profondeur obtenue par le creusement, augmenta la hauteur de l'eau jusqu'à sept pieds, et elle a été maintenue à cette hauteur sans interruption durant tout le tems de la navigation. Ce canal a été fermé le 19 novembre.

Quoique les obstructions qui avaient été laissées au fond de ce canal aient été enlevées, cependant il paraît, par les affaires qui ont été faites sur ce canal l'année dernière, que l'augmentation n'a pas été aussi considérable qu'on s'y attendait. Les facilités obtenues par cette plus grande hauteur d'eau ont indubitablement eu l'effet de réduire le coût de transport, et cependant le résultat prouve que le canal ne peut entrer en concurrence avec les autres routes par où les produits de l'Ouest se rendent au lac Champlain. On peut attribuer cela à deux causes : la première, la dimension limitée des écluses, qui ne permettent pas aux grands vaisseaux des lacs de passer ; la seconde, la longueur du voyage, environ soixante-cinq milles de plus que la ligne directe de Montréal.

Ces faits ont une grande porjet lorsqu'on considère le projet du canal entre le St. Laurent et le lac Champlain, mentionné dans une partie subséquente de ce rapport.

ÉCLUSE ET CHAUSSÉE DE SAINTE ANNE.

Cette écluse a été tenue en bon ordre et en opération constante, depuis le 17 avril jusqu'au 24 novembre.

L'accès à cette écluse a été amélioré considérablement ; les pointes de la batture au-dessous de l'écluse ont été minées et enlevées, ainsi que quelques roches sous eau qu'il y avait au-dessus de l'écluse.

TRAVAUX SUR L'OUTAOUAIS.

Les glissoires et autres travaux faits sur les rivières Outaouais, Madawaska et Gatineau ont été visités par l'ingénieur en chef durant la saison dernière. Ils ont tous été réparés dans le cours de l'automne et de l'hiver dernier, et ont pu ce printems passer tout le bois, sans souffrir aucun dommage sérieux.

Avec l'appropriation de l'année dernière, une nouvelle glissoire a été construite au Portage du Fort ; ses opérations ont très-bien réussi ; de nouveaux bômes ont aussi été placés aux rapides des Chênes sur le Madawaska.

Outre les réparations ordinaires maintenant nécessaires pour mettre les glissoires en bon ordre pour la saison prochaine, il est désirable que l'on prenne des mesures pour faire de nouveaux ouvrages en rapport avec ceux qui existent déjà, comme il a été recommandé par le surintendant, ces améliorations étant nécessaires pour la protection de la propriété et pour diminuer les risques et les frais accompagnant le passage de quelques-unes des glissoires. Pour les travaux du Calumet, £280, de la Montagne, £440, des Chats, £210, de la Chute à Barratt sur le Madawaska, £200, en tout £1,130 seront requis. Voir le tableau nº 9.

L'attention des commissaires ayant été appelée sur les immenses pouvoirs d'eau qui existent aux Iles de la Chaudière, à Bytown, par les nombreuses demandes qu'ils ont reçues pour le loyer d'iceux, ils ont fait faire une inspection soignée de ces Iles, et un plan a été préparé dans le but de mettre ces priviléges en pleine opération. Le commissaire en chef a visité la localité dernièrement, pour voir par lui-même les arrangemens proposés. Les conditions de la vente et les dispositions préléminaires ayant été établies, les priviléges d'eau, et les lots à bâtir ont été avertis pour être mis en vente par encan, à Bytown, le premier octobre prochain. D'après l'anxiété qu'on a montrée pour obtenir des priviléges, les commissaires espèrent disposer avantageusement de ces terreins vacans et de ces pouvoirs d'eau maintenant improductifs; ce qui en même tems devra exercer la plus grande influence sur la prospérité de Bytown et des environs.

Mais afin de mettre ces pouvoirs d'eau à la portée des entreprises individuelles, il à été nécessaire d'encourir une dépense de £1,400 dans la construction de portes de garde (*Head Gates*) chaussées et ponts, somme qui toutefois sera plus que remboursée par le revenu des ventes et des rentes d'eau pendant la première année.

TRAVAUX SUR LE ST. MAURICE.

Les ouvrages sur cette rivière ont été commencés aussitôt que l'on a pu faire les arrangemens à cette fin. Au retour de l'ingénieur en chef du département en novembre dernier, de son inspection des travaux sur l'Outaouais et la rivière Trent, il fut envoyé sur le St. Maurice, accompagné de M. Simon J. Dawson, sous la surintendance duquel les travaux devaient être conduits. D'après son examen et son rapport, les commissaires ont cru désirable de restreindre la dépense à la construction de glissoires de six pieds de large pour faire passer des plançons séparés, comme plus adaptées à cette rivière et à la nature probable du commerce de bois qui s'y ferait; ils ont décidé aussi de ne pas étendre les améliorations, en vertu de la présente appropriation, au-delà des chûtes de la Grande Mère, situées à trente milles de son embouchure, les principaux ouvrages seront donc :—

1. Glissoire et bômes à la Grande Mère.
2. Améliorations aux Rapides des Hêtres.
3. Glissoire et bômes aux Chûtes de Shawenigan.
4. Bômes et quai aux Chûtes des Grais.
5. Améliorations aux rapides de la Gabelle.
6. Quais et bômes aux Trois-Rivières.

Durant l'hiver et le printems dernier, des jetées ont été construites à l'embouchure de la rivière, des bômes ont été faits et les travaux étaient assez avancés à l'ouverture de la navigation pour répondre à l'objet auquel ils étaient destinés. Ils ont retenu tout le bois qui a descendu la rivière. Avant la clôture de la saison ils seront entièrement finis et prêts pour les opérations du printems prochain.

Un quai et des bômes ont aussi été construits aux Chûtes des Grais, pour attirer le bois dans la Chûte du Milieu, ce plan a très-bien réussi, et répondra sans aucun doute au but désiré.

Outre les ouvrages qui ont été ainsi mis en opération le printems dernier, on a fait l'acquisition d'environ 80,000 pieds de pin pour les travaux des autres stations, et les ouvrages qui restent à faire seront entrepris aussitôt que l'eau sera baissée au niveau convenable pour permettre de travailler, les soussignés espèrent qu'ils seront prêts à servir avant l'ouverture de la navigation le printems prochain. D'après les explorations récentes de la rivière et de ses tributaires les Commissaires apprennent, que le pays, qu'elles arrosent abonde en pin de bonne qualité et que la dépense pour la construction de ces glissoires sera une excellente spéculation.

TRAVAUX SUR LA RIVIÈRE TRENT.

Les glissoires ont été réparées durant l'automne et l'hiver, et ont servi à faire passer le bois ce printems sans interruption, mais l'eau étant devenue extrêmement haute, et plusieurs chaussées de moulin ayant été emportées en conséquence, les travaux ont été endommagés plus ou moins, quoiqu'il n'y ait eu pourtant aucun dommage sérieux.

Sur les représentations de certaines personnes engagées dans le commerce de bois sur cette rivière, concernant la nécessité d'attacher des glacis (*aprons*) aux glissoires de l'Outaouais, et d'améliorer certaines parties du chenal, pour rendre le passage du bois plus sûr, et par là réduire le coût de transport, les commissaires ont envoyé leur ingénieur pour examiner les améliorations proposées et faire rapport. Il paraît que les améliorations demandées coûteraient environ £1750, et qu'elles seraient indubitablement d'une grande utilité. Des glacis flottants sont constamment en usage sur l'Outaouais, et dans le fait avec le système qu'on suit sur cette rivière pour descendre le bois, ils sont indispensables. Pour suppléer à leur absence sur la rivière Trent, les commerçans de bois sont obligés de lier chaque pièce de bois aux traverses au moyen de liens (*withs*) ; il faut quelquefois recommencer cette opération après avoir descendu une glissoire, et comme cela est une source de dépense, ils se sont montrés disposés à payer des droits additionnels, pourvu qu'on voulût faire ces améliorations. A cette condition, les commissaires sont prêts à recommander une appropriation à cet effet, et ils ont en conséquence entré cette somme dans les estimés de cette année. (Voir tableau n° 10.)

NAVIGATION INTÉRIEURE.

Districts de Newcastle et de Colborne.—Bien qu'on ne retire aucun revenu de ces ouvrages, ils sont cependant sous les soins du département, et le gouvernement est obligé de faire les dépenses de leur entretien. Cette dépense pour l'année dernière (1851) n'a été qu'une bagatelle, mais durant le printems dernier, la crue des eaux et la gaucherie de quelques commerçans, ont causé aux ouvrages des dommages considérables. Une brèche de soixante pieds de large a été faite à la chaussée de Buckhorn, et une partie du pont a été emportée, par la faute des *lumbermen.*

Quelque dommage a aussi été fait à l'écluse Whitlas, par des agglomérations de bois qui se sont accrochés à la chaussée, à l'endroit où on avait placé des poteaux de défense et des gardes pour permettre aux steamboats de passer l'écluse en sûreté.

Les Commissaires n'ont pu vendre aucun de ces ouvrages, ni aucun de ceux construits sur la rivière Trent, aux municipalités ou à des compagnies privées, mais ils prennent cependant la liberté de recommander une dépense de £2,500 pour bâtir un pont tournant sur l'écluse de Scugog, pour mettre cette écluse en bon orde et réparer et pierrotter les chaussées à Buckhorn et Bobcaygean, lesquels ouvrages auraient l'effet de lier les lacs Scugog et Sturgeon par une navigation à la vapeur, et d'ouvrir une communication entre le havre de Windsor, sur le lac Ontario et les nouveaux townships en arrière des lacs Sturgeon et Pigeon, et mettre par là les immigrans en état de se rendre en très peu de tems et à peu de frais, avec leurs bagages, au lieu de leur destination, ce qui tendrait beaucoup à promouvoir l'établissment des terres de la couronne dans cette partie de la province.

PORT STANLEY.

Les jetées ont été complétées tel qu'il avait été pourvu en passant le contrat avec M. Cotton, mais on a mis quelque retard à élever la charpente.

Le chenal a été tenu libre, en creusant de tems à autre, et toutes les facilités permises par l'exiguité du havre ont été offertes.

La construction du bassin intérieur projeté, si indispensable pour permettre aux vaisseaux de tourner, aussi bien que pour offrir plus de commodité au trafic croissant du port, a été empêchée jusqu'aujourd'hui par les frais que ferait encourir l'achat du terrein nécessaire,—mais des négociations sont actuellement pendantes qui auront l'effet, nous espérons, de faire disparaître cette difficulté,—le coût du bassin, £7,500, doit être pris sur le revenu du havre, à mesure qu'il sera perçu.

CANAL DE LA BAIE DE BURLINGTON.

Les jetées ont été réparées, et quelques endroits du canal creusés de manière à tenir ce canal en bon ordre durant toute la saison.

Une des jetées s'est quelque peu affaissée, ce qui nécessitera une dépense avant longtems, mais à présent il ne paraît nullement nécessaire de faire aucune disposition à cette fin.

CHEMINS ET PONTS.

Conformément à la politique suivie depuis quelques années par le gouvernement, au sujet des chemins et ponts communs, on verra par le tableau n°. 3, que tous les principaux ouvrages productifs de cette nature ont été vendus, et à mesure que la balance des appropriations existantes aura été dépensée sur les ouvrages qui ne rapportent rien, ils seront mis à la charge des municipalités locales.

Les seuls chemins vendus en 1851, sont, le chemin de Chambly et Granby, et celui de Chambly et Longueuil. Aucun pont n'a été vendu cette année.

HAVRES.

Les seuls hâvres actuellement sous le contrôle du département sont : le Port Stanley et la Baie de Burlington, qu'on considère comme des ouvrages provinciaux dont il ne doit pas être disposé. Les hâvres de Whitby et de Dover ont été vendus en 1850 et celui du Rondeau en 1851.

QUAIS EN BAS DE QUÉBEC.

Aussitôt après l'appropriation votée pour ces ouvrages, on s'occupa à déterminer la position respective qui serait assignée à chacun de ces quais, à faire les inspections et les examens nécessaires, et lorsque tout cela fut complété, on ne perdit pas de tems pour avertir et demander des soumissions.

Les montans votés pour des ouvrages de cette nature, ouvrages en certains cas, si exposés, étant très limités on rencontra plus d'obstacles et de trouble qu'on en rencontre d'ordinaire pour fixer le site que chacun d'eux occuperait, de manière à faire un ouvrage sûr et commode, autant qu'on pouvait le faire avec la somme appropriée : les soussignés se flattent qu'on trouvera que tout cela a été accompli.

Un grand nombre de soumissions ont été reçues : les plus basses ont été acceptées.

On est entré en engagement avec M. Baby pour la construction des quais du côté nord du fleuve. Les contrats ont été signés le 19 avril dernier ; immédiatement après, ce monsieur se procura les matériaux, et commença les travaux ; les progrès qu'on a déjà faits font espérer que ces deux quais seront complétés à l'époque fixée par le contrat, c'est-à-dire, le premier jour de novembre prochain.

Les contrats pour la construction des quais de Berthier, de l'Islet, de la Pointe aux Orignaux, et de la Rivière du Loup ont été donnés à MM. Rigney et Smith, les époques auxquelles ces quais doivent être complétés en vertu des contrats sont : pour Berthier, le 1er juillet 1853, pour l'Islet, Pointe aux Orignaux et Rivière du Loup, le 1er août 1853. Peu de progrès ont été faits jusqu'à présent. Une partie considérable d'un cajeu destiné à ces quais, a été perdu, dit-on, en se rendant au lieu de sa destination.

Depuis la date des derniers rapports, les contracteurs ont fait plus d'efforts ; ils ont obtenu les services d'une personne compétente pour conduire ces travaux, ils ont obtenu des matériaux en plus grande quantité et d'une meilleure qualité.

QUAI DE RIMOUSKI.

Le coût de ce quai, même en donnant le contrat au plus bas soumissionnaire, aurait excédé tellement le montant de l'appropriation que les soussignés avaient résolu de ne pas faire entreprendre l'ouvrage, avant que la législature eût pris de nouveau la chose en considération ; un certain nombre de propriétaires de l'endroit, ayant appris cette détermination, et ne voulant pas être privés si longtems des grands avantages qui pouvaient résulter de la confection de cet ouvrage, vinrent de l'avant et s'offrirent d'entreprendre la construction du quai pour une somme d'environ un quart moindre que la plus basse soumission qui avait été reçue précédemment. Les soussignés se sont donc abouchés avec MM. M. et E. Lepage, et les ouvrages sont maintenant en voie de confection.

On ne saurait entretenir aucun doute raisonnable que ces quais ne soient non-seulement d'une très-grande importance pour l'amélioration des localités où ils seront situés, mais qu'ils seront encore d'une grande commodité et d'un grand avantage pour la navigation du fleuve en général.

Ces travaux ont déjà eu l'effet de stimuler l'esprit d'entreprise individuel vers la confection de bateaux à vapeur destinés à voyager entre Québec et le Golfe, et l'établissement d'une telle ligne tendrait aussi à faciliter considérablement la navigation du fleuve, et à développer les ressources d'une partie importante de la province, très susceptible de devenir considérablement productive, bien qu'elle ait été peu connue jusqu'ici, qu'on n'y ait fait à peine aucune attention, et qu'on n'ait rien dépensé pour son amélioration.

Les soussignés sont d'opinion que les sites de ces quais pour lesquels on a fait des appropriations, ont été judicieusement choisis ; mais pour en retirer toute le profit qu'on en attend, il serait nécessaire, dans quelques cas, de les prolonger un peu, il serait nécessaire aussi d'ériger des quais à quelques autres endroits ; mais les commissaires ne sont pas prêts à recommander l'érection d'aucun autre avant qu'on se soit assuré si ceux qui sont maintenant en voie de construction, réussiront.

PHARES, ETC., EN BAS DE QUÉBEC.

Une appropriation a été faite durant la dernière session pour l'érection d'un phare au Cap Rosier.

L'établissement d'une communication directe par la vapeur entre Québec et la Grande-Bretagne ayant été peu de tems après soumis à la considération de l'exécutif, il fut jugé convenable de remettre la construction du phare jusqu'à ce que cette importante mesure eût été décidée ; il serait nécessaire d'ériger des phares à d'autres points mentionnés dans ce rapport, et le tout pourrait être placé économiquement sous la régie d'un seul établissement.

La somme nécessaire pour l'érection d'une maison sur la terre-ferme, adjoignant la batture de Manicougan, avec un canon pour être tiré à chaque demie-heure, en tems de brume, a été aussi appropriée durant la dernière session. Une reconnaissance de la tête de Manicougan a été faite dans le mois dernier, et le site a été fixé, de sorte que cet ouvrage pourrait être averti en même tems que le phare au Cap Rosier.

EDIFICES PUBLICS.

Toronto.—Lors de la translation des départemens publics à Québec pour la transaction des affaires dans cette cité, les divers édifices qui avaient été occupés par eux à Toronto, ainsi que la résidence du Gouverneur furent mis sous les soins de M. Alfred Patrick, et dans chacun d'eux fut placée une personne chargée de veiller à leur sûreté et à ce qu'ils fussent chauffés et aërés convenablement.

Le coût du bois de chauffage nécessaire, le paiement de l'assurance, les salaires des gardiens, et une légère dépense pour réparer les toits, faire des égoûts etc., sont les seules dépenses qui ont été encourues à l'égard des édifices publics à Toronto.

Dans le dernier rapport annuel de ce département on a fait remarquer le mauvais état de l'hôtel du Gouvernement, et il fut recommandé que la bâtisse fût démolie et une résidence convenable pour le Gouverneur de la province érigée à la place ou près du même site. Cette recommandation fut approuvée, et une appropriation de £10,000 fut faite pour subvenir aux frais de son érection. Un avertissement appelant les architectes à présenter des plans a été inséré dans les papiers-nouvelles, et lorsque les plans auront été muris et qu'on en sera venu à une décision, on se propose de donner immédiatement le contrat afin que les matériaux puissent être préparés durant l'hiver prochain.

Le bail de Elmsly Villa, louée pour servir de résidence temporaire au Gouverneur-Général ayant expiré, le tout a été abandonné aussitôt après le départ de Son Excellence pour Québec, et en conséquence aucune dépense n'a été faite à cet égard.

Bureau de Poste.—Une appropriation de £4,500, ayant été faite pour l'érection d'un bureau de poste convenable à Toronto, un site a d'abord été acheté pour la somme de £1,137 10s. Les plans ont été choisis par le maître-général des postes, et le contrat se montant à £2987 a été donné. Un estimé supplémentaire a été présenté par l'architecte, de divers items de dépense *extra*, se montant à la somme de £540.

Montréal,—Batisse des Terres de la Couronne.—La bâtisse située à l'extrémité ouest du Champ-de-Mars, achetée pour l'usage du département des terres de la couronne, a été appropriée aux fins temporaires du département géologique et à la collection des minéraux de cette province. Peu de dépense a été encourue là l'an dernier, à part le chauffage, l'assurance, et quelques légères réparations; mais une légère somme est demandée par le géologue pour l'érection d'une fournaise, de casses, tablettes, etc.

Ancien Hôtel du Gouvernement.—Cette bâtisse sert maintenant à l'usage des cours de justice et des officiers publics attachés à ces cours, et aussi à l'usage du département du régistrateur du comté,—la somme d'environ £600 y a été dépensée cette année, dont environ £20 en petites réparations, le reste ayant été employé à préparer et arranger les appartemens nécessaires pour la transaction des affaires légales; cette somme est en conséquence mise sur le compte du nouveau palais de justice,—quelques-uns des bureaux extérieurs sont bien peu convenables, et les soussignés sont d'opinion qu'aussitôt que les cours pourront se tenir dans les nouvelles bâtisses, il sera expédient de disposer de cette propriété.

Monklands—fut loué en 1844 pour servir de résidence au Gouverneur de la province, au taux de £175 par année, pour cinq ans, à l'expiration desquels on passa un nouveau bail pour £450, lequel bail expirera le premier mai 1854. Lors de la translation du gouvernement dans le Haut-Canada, le bail fut vendu par encan pour le reste du terme, au prix de £125 par an, laissant jusqu'à l'expiration une balance annuelle de £325 à être payée par la province. Avis a été dûment donné de l'intention d'abandonner la propriété.

Prison.—Sur l'appropriation qui fut faite en 1847 pour l'amélioration de cette prison, il a été dépensé, à venir au premier août courant, la somme de £1,322, laissant une balance d'environ £1,290.

Les altérations qu'on fait actuellement à l'aile Est de la bâtisse faciliteront d'une manière importante la garde des prisonniers ainsi que leur santé, et permettra de les mieux classer. Les travaux sont maintenant sous la direction de M. McGinn, agissant d'après les instructions du département. Une partie considérable de l'ouvrage est effectuée au moyen du travail des prisonniers condamnés aux travaux forcés, et on ne saurait donner trop d'éloge à M. McGinn, pour l'efficacité de ses arrangemens et le jugement qu'il a montré dans la régie des travaux.

Outre les ouvrages pour lesquels l'appropriation avait été faite, plusieurs autres d'une nature indispensable demanderont de nouvelles dépenses, tel que la réparation ou construction de cheminées, et autres parties extérieures de la bâtisse, réparations des toits, appareils de ventilation, etc., etc. Le coût de tous ces ouvrages, y compris ce qu'il faudra encore pour finir les travaux pour lesquels il y a eu une appropriation, est estimé à £2600, déduisant la somme de £1290 (balance de l'appropriation non encore dépensée,)—il resterait, disons, la somme de £1300 nécessaire pour couvrir le coût des ouvrages.

Le besoin de cours pour permettre aux prisonniers de prendre l'air et l'exercice, et de chambres de jour, se fait malheureusement sentir, bien que la prison possède une étendue considérable de terrein inoccupé. Les soussignés recommandent fortement que ce terrein soit entouré d'un mur convenable, ce qui, en employant le travail des prisonniers ne coûterait pas plus de £1200. Par cette amélioration, les prisonniers auraient plus de moyen de prendre de l'exercice ou travailler en plein air.

Palais de justice.—Plusieurs plans pour cette bâtisse ayant été fournis par les architectes, en conséquence d'un avertissement public publié par ce département, ceux de MM. Ostell et Perrault eurent la préférence, et les contrats pour la maçonnerie, la pierre de taille, et la charpente, furent peu après donnés à MM. Laberge et Cie.

De bonne heure cette année, et lorsque les ouvrages étaient assez avancés, des personnes présentèrent diverses objections à certains détails et arrangemens de la bâtisse,—ces objections furent d'abord décrites d'une manière vague—paraissant dans les journaux sous des signatures anonymes, et n'étant pas mises officiellement sous les yeux du département—et comme on savait qu'il y avait beaucoup de jalousie de métier au sujet des plans, les soussignés ne se crurent pas appelés à prendre la chose en considération ; surtout parce qu'il leur répugnait d'intervenir dans des arrangemens adoptés antérieurement à leur entrée en office.

L'affaire cependant fut regardée d'un œil différent, lorsque certains mémoires et rapports écrits, faits par des membres du barreau, des juges, et d'autres officiers des cours, adressés à l'hon. procureur-général pour le Bas-Canada, indiquant la nécessité de faire des changemens, furent mis par ce monsieur devant le Conseil Exécutif, et transmis ensuite à ce département avec ordre de les examiner et faire rapport.

Les divers documens furent de suite envoyés aux architectes, et ceux-ci furent requis d'entrer en communication avec les personnes qui les avaient rédigés, et de faire un rapport de leurs opinions sous le plus court délai possible. Ce rapport fut fourni peu de tems après ; on envoya en même tems à ce département des plans corrigés, indiquant diverses altérations recommandées, mais comme il était évident qu'on n'avait pas pu leur donner une considération suffisante, et que ces plans, tels qu'amendés, étaient de l'aveu de tous, encore imparfaits et peu susceptibles de remédier aux objections présentées aux plans originaires, spécialement pour ce qui regardait le manque de sûreté contre le feu de l'étage du rez-de-chaussée, où doivent être déposés tous les records publics, et comme la continuation des travaux n'aurait fait qu'occasionner de nouvelles difficultés, et de nouvelles dépenses pour exécuter les changemens demandés, les soussignés se virent avec répugnance obligés de prendre sur eux la responsabilité de suspendre les travaux, jusqu'à ce que la chose eût été plus mûrement considérée. Ceci ayant été fait, on eut une entrevue avec les contracteurs, des dispositions furent faites pour la reprise immédiate des travaux, et la compensation à laquelle avaient droit les contracteurs en conséquence de la suspension temporaire des ouvrages fut établie d'une manière satisfaisante pour toutes les parties.

Les soussignés se sont convaincus par eux-mêmes, après un examen soigné, que le coût du palais de justice, s'il avait été construit d'après le plan primitif, y compris plusieurs items essentiels, indispensablement nécessaires pour la transaction des affaires auxquelles il était destiné, items auxquels il n'avait pas été pourvu dans les estimés, aurait de beaucoup excédé la somme assignée comme suffisante : et ils ont toute raison de croire que les plans, tels qu'amendés par eux, et avec les avantages additionnels qu'ils procurent, n'auront en définitive nécessité aucune dépense *extra*.

ÉCOLE NORMALE.—Au sujet de l'établissement projeté d'une école normale pour le Bas-Canada, en vertu des dispositions de l'acte 14 et 15 Vic. chap. 97, un ordre en conseil, en date du 13 courant, fut passé et transmis, à ce département ; la substance de l'ordre était :

« Que comme la propriété située dans la cité de Montréal, connue sous le « nom de *High School* et alors en vente, était représentée par l'hon. secrétaire « provincial comme étant la plus convenable qui pût être choisie, et cette cité le « lieu le plus éligible pour l'établissement d'une école normale, à cause de sa population, etc., l'hon. commissaire en chef des Travaux Publics, est autorisé à acheter « la bâtisse et la propriété y attenant, pour une somme n'excédant pas £4,500."

La bâtisse et ses dépendances furent en conséquence achetées pour cette somme, et les instructions données pour les plans et estimés relatifs aux changemens nécessaires pour adapter l'édifice aux fins de l'école normale.

Le montant de l'acquisition, et la première dépense nécessaire pour l'amélioration de la bâtisse, seront pris sur les fonds en mains provenant des biens des Jésuites, comme placement à cinq pour cent.

QUÉBEC.—Pour placer les différens départemens publics lors de leur translation à Québec, on fit les arrangemens les plus économiques possibles, mais on s'aperçut bientôt qu'ils n'étaient pas suffisants, et des additions considérables devinrent nécessaires ; les suivans furent, en définitive, adoptés.

CHATEAU ST. LOUIS.—Cette bâtisse a été appropriée à l'usage du département des terres de la couronne et ses branches subordonnées, les bureaux du domaine de la couronne et des biens des jésuites, le bureau du greffier de la couronne en chancellerie, et aussi au département des Travaux Publics, et au bureau du régistrateur provincial.

Les altérations nécessaires occasionnèrent beaucoup plus de dépenses qu'on ne l'avait anticipé, vu l'état détérioré où on trouva les toits, les planchers, etc., etc.—Pour ces altérations, réparations, etc., etc., et les arrangemens nécessaires pour les différens départemens, on a dépensé la somme de £2,780 2s. 3d.

HÔTEL ST. GEORGE.—Cette bâtisse a été louée pour quatre ans, au prix de £400 par année, et un *bonus* de £450 fut donné pour en obtenir la possession immédiate. Les branches du service public qui ont leurs bureaux dans cette bâtisse sont : le Gouverneur-Général et le Conseil Exécutif ; le secrétaire du Gouverneur et l'agent en chef des affaires des sauvages ; l'une et l'autre branche du département du secrétaire provincial ; et les bureaux des Procureurs-Généraux, Est et Ouest. La somme de £1, 749 10s 11d a été dépensée pour les altérations et réparations nécessaires.

BATISSES DE JONES.—Ces deux maisons servent au département de l'inspecteur-général, y compris les branches de la douane et de l'audition, et le département du receveur-général. Ces maisons ont été louées pour quatre ans, à £240 par an. On a dépensé la somme de £412 en altérations et arrangemens intérieurs.

DÉPARTEMENT DES POSTES.—On a loué, à l'usage de ce département, une maison pour l'espace de quatre ans, au taux de £125 par année.

DÉPARTEMENT DES STATISTIQUES.—On a loué une maison pour le département des statistiques et les bureaux des adjudants-généraux pour le Haut et le Bas-

Canada. Le bail est pour quatre ans; la rente, £125 par année. La somme de £151 19s. 0d., a été depensée pour les altérations et arrangemens intérieurs nécessaires.

De ce qui précède on peut voir qu'indépendamment de la bâtisse du château, il a été nécessaire pour placer les divers départemens de prendre les maisons suivantes, savoir: l'hôtel St. Georges—deux maisons de M. Jones—une appartenant au col. Gugy, et une autre à M. Amiot: les rentes payables annuellement pour ces maisons se montent en tout à £890, ce qui, à six par cent, représente un capital de £15,000. Une grande proportion de la dépense qui a été faite a été occasionnée par des changemens ou arrangemens à faire dans l'intérieur ce qui ne sera pas perdu dans le cas où les départemens viendront à être mieux placés. La transaction des affaires publiques dans des bâtisses entièrement séparées, est accompagnée de beaucoup d'inconvéniens et de délai, et le peu de sureté où sont actuellement les records publics contre les accidens par le feu est un sujet qui vaut la peine d'être médité.

Batisses du Parlement.—Une appropriation partielle a été faite pour cet ouvrage, mais elle était basée sur des estimés dans lesquels n'avaient pas été compris un nombre d'items indispensablement nécessaires, non seulement pour la confection entière de la nouvelle aile, mais pour plusieurs changemens et réparations qu'il était nécessaire de faire au centre et aux autres parties de l'édifice, pour l'adapter aux besoins croissans de la législature-unie.

A peu près vers le tems où les murs extérieurs de la nouvelle aile venaient d'être complétés on fit remarquer aux soussignés des défauts dans les plans des divisions intérieures, et à la demande de l'orateur du Conseil Législatif, et d'autres membres de la Législature, une assemblée eut lieu dans l'édifice même dans le but de prendre ce sujet en considération; il en résulta que les plans qu'on devait suivre furent entièrement abandonnés, et d'autres plans, préparés sous la direction des soussignés leur furent substitués, et on obtint ainsi une distribution beaucoup plus commode et plus convenable des divers appartemens. Ces altérations n'ont occasionné aucune augmentation de dépense, le coût de la nouvelle aile d'après ces plans n'ayant pas excédé ce qu'elle aurait coûté si on eut suivi le plan originaire.

Le coût de la nouvelle aile, y compris aussi quelques réparations partielles auxquelles il avait été pourvu dans l'estimé originaire fut de....	£13,596	6	2
Mais les sommes suivantes ont été dépensées pour des items auxquels il n'avait pas été pourvu, savoir:—1o. étendre, disposer et arranger la bibliothèque, de manière à contenir 40,000 vols. au lieu de 15,000, y compris les rayons, tablettes, etc., etc....	500	0	0
Ventilateurs, tuyaux, etc., pour la nouvelle aile, et appareils pour chauffer et aërer la bâtisse du centre	600	0	0
Egoûts autour de la bâtisse pour chasser l'eau de la surface—cuvettes—tuyaux conducteurs—privées—trottoirs—clôture....	200	0	0
Changer, agrandir, et décorer la salle de l'Assemblée............	1100	0	0
Porté en l'autre part............	£2,400	0	0

Rapporté de l'autre part	£2,400	0	0
Faire un ajouté à cette salle, des chambres pour l'orateur et le greffier, soupapes, etc	1050	0	0
Changer et réparer la vieille bâtisse—convertir la ci-devant bibliothèque en chambres de comités, et érection d'un balcon en fer du côté du fleuve	1350	0	0
Assurer le plafond au-dessus de la salle de l'assemblée ; réparer le toit et faire de nouvelles altérations pour le Muséum	300	0	0
Tuyaux pour le gaz, appareils, etc., salle de l'assemblée et partie ancienne de l'édifice, y compris les lumières à l'extérieur	650	0	0
Jalousies à toutes les fenêtres	262	19	0
Ameublement de toute la bâtisse, y compris la tapisserie, tapis, décorations, etc., etc	4732	0	7½
Diverses altérations et améliorations faites à la nouvelle aile, non estimées	158	14	2½
Plans, surintendance, etc., etc	500	0	0
	£25,000	0	0

Il faudrait maintenant une approche sur le devant, avec des murs de revêtement, une clôture en fer pour entourer l'édifice, ce qui, avec les portes nécessaires, est estimé à	1500	0	0

Hôtel Albion.—Cette maison a été louée pour servir de résidence à Son Excellence le Gouverneur-Général durant l'hiver, pendant la construction des bâtisses erigées à Spencer Wood. Le terme fut de six mois, et comme le propriétaire avait été obligé de sortir sans délai et laisser la maison telle qu'elle était, complètement meublée, la somme de £500 lui fut payée. La maison fut abandonnée à l'expiration du terme.

Spencer Wood.—Une partie du terrein et la maison appartenant à Henry Atkinson, écuyer, furent d'abord louées à £450 par année, pour le terme de quatre ans, pour servir de résidence au Gouverneur-Général de cette province. On attacha au bail la condition que le Gouvernement aurait le droit d'acheter la propriété pour la somme de £8,000, s'il était donné avis de cette intention avant le premier mai dernier. Comme il fallait dépenser une somme considérable pour changer et agrandir la maison et les bureaux, pour les adapter à l'usage auquel ils étaient destinés, on se décida peu de tems après à faire l'acquisition, et elle fut effectuée dans le cours des travaux. Cependant, il devint bientôt évident qu'il fallait acquérir une autre partie du terrein de Spencer Wood, savoir: les dix acres adjoignant le terrein dont on avait déjà fait l'acquisition, pour les raisons suivantes: La limite ouest du terrein acheté se trouvait à quelques pieds de la maison et des bureaux,—M. Atkinson se réserva un chemin le long de ce terrein pour permettre aux travailleurs d'aller et venir des Anses,—et sur toute l'étendue de la limite sud adjoignant les Anses, ce monsieur retint une petite lisière sur laquelle allaient bientôt être érigées des bâtisses, auxquelles il y aurait eu nécessairement de grandes objections ; ajoutez à cela que tout le jardin et la plus belle partie du terrein se trouvent sur les dix acres en question. Sous ces circonstances, et vu que le prix serait devenu plus élevé chaque jour, les soussignés recommandèrent et obtinrent de l'Exécutif l'autorisation d'acheter ces dix acres pour la somme de deux mille louis, ce qui renfermait aussi la lisière réservée sur le côté sud. Le lot, tel que maintenant possédé par la province, contient environ soixante-dix-huit acres, achetés au prix de £10,000, somme qui ne peut paraître extravagante, lorsqu'on considère la grande beauté naturelle de ce terrein et sa proximité de la ville.

Les arrangemens et les contrats pour les altérations de la maison et les bureaux, faits préalablement à l'entrée des soussignés en office, ont été conclus en vue de la plus stricte économie,—mais en voulant atteindre ce but, on n'a pas considéré l'étendue qui serait nécessaire, non plus que plusieurs autres objets concernant les réparations et altérations à faire à la maison et aux bureaux, les approches, l'égouttage, etc., etc. La dépense a donc dépassé de beaucoup le montant des premiers estimés, vu le nombre d'objets indispensables qui n'avaient pas été prévus, et vu aussi la difficulté de dire d'avance ce que coûteraient les réparations à faire à une vieille maison, pour la faire servir à des usages auxquels elle n'avait pas été destinée, et les soussignés ont regretté sans cesse qu'elle n'eût pas été tout d'abord entièrement démolie.

L'insuffisance des plans et le mode de direction paraissant aux yeux des soussignés devoir exiger des changemens, ils adoptèrent des procédés en conséquence, au commencement de l'année présente,—époque où on avait déjà fait une dépense de £5,400 pour la maison, et environ £994 pour des puits, granges, maison de garde, etc.; ajoutant à cela la somme de £751, dépensée subséquemment pour compléter les objets qui viennent d'être mentionnés, on verra qu'on a dépensé la somme de £7,145, somme dont les détails procèdent d'arrangemens auxquels les soussignés n'avaient pas été parties.

La distribution des chambres, entrées, passages, etc., suivant les plans originaires, fut trouvée très défectueuse; tellement que la maison n'aurait pas été comfortable ni commode; pour l'améliorer, et disposer convenablement la partie destinée aux soins domestiques, aussi bien que pour procurer des salles propres aux réceptions, les soussignés considérèrent qu'il fallait un ajouté à l'extrémité est; l'ouvrage fut autorisé et construit, et la maison a été par là rendue très commode.

Le coût de cette aile, avec les autres altérations qu'on a fait subir à la vieille maison, agrandir le salon, peindre, tapisser, divers appareils, etc., a été d'environ £2,370. La somme totale dépensée sur cette maison est donc comme suit :—

Premièrement, en vertu des contrats primitifs	£6151
Secondement, sous la régie et la direction des soussignés	2370
Total	£8521

La dépense totale faite sur cette propriété est :—

Pour la maison, tel que mentionné	£8521
Pour divers ouvrages extérieurs, prévus d'avance	994

Pour les items suivans, déjà mentionnés comme ayant été trouvés nécessaires, mais auxquels il n'avait pas été pourvu dans les estimés primitifs, savoir :—

Egoûts autour de la bâtisse et dans les environs, avec des privées........	290
Réparer les citernes, pompes, fontaines et chaudières de la vieille maison..	105
Agrandir, compléter et réparer les écuries, chambre du groom, place pour les attelages, la vacherie, etc......................................	222
Clôturer en fer et en bois, réparer la loge, la serre, la maison du jardinier, y compris les portes, et agrandissement des casernes tel que requis par les autorités militaires......................................	1191
Faire des chemins, pierrotter, construire un mur en pierre et en brique autour du jardin, et divers autres objets..................................	1362
Plans, surintendance, etc..	374
	£13,059

La dépense faite sur cette propriété, y compris les chemins, clôtures, égoûts, puits, citernes, murs de jardin, altérations et additions faites à la maison, construction des casernes, granges, etc., est donc de £13,059.

Ces lieux éprouvent l'inconvénient d'un approvisionnement insuffisant d'eau dans les tems de sécheresse ; pour remédier à cela il faudrait construire deux grands réservoirs ou citernes ; cela, avec la complétion des clôtures autour du terrein sont les seuls ouvrages importans à effectuer maintenant.

Translation des départemens publics, etc.—Le montant payé jusqu'au 21 août, est d'environ 11,171 ; sur cette somme on a payé pour le transport de Son Excellence le Gouverneur-Général et des bureaux du gouvernement, et le fret de leur ameublement, et l'ameublement et les documens des différens départemens publics et de la législature, environ £8,550. La balance a été dépensée pour poêles, tables de bureaux, tapis, etc., etc.

Prison.—On peut avec raison avancer contre la prison de cette cité toutes les objections qu'on a faites contre celle de Montréal, mais avec beaucoup plus de force ; cependant, comme ce sujet est plus spécialement de la juridiction des inspecteurs des prisons provinciales, les soussignés se bornent à rendre compte de la dépense qui a été faite sous la direction de ce département. L'enlèvement récent de la garde fournie par le militaire pour cette bâtisse, a rendu nécessaire l'agrandissement de la maison de garde, de manière à pouvoir loger les gardes de la prison actuellement fournies par la cité. On a dépensé pour cela la somme d'environ £239 4s. 2d.

Palais de justice.—Les officiers des cours ayant représenté à l'exécutif que l'état du palais de justice de cette ville exigeait des réparations considérables, et un nettoyage général, ainsi que divers objets d'ameublement et d'arrangement intérieur, ce département fut autorisé à dépenser pour cet objet la somme de £590 15s. 7d. La bâtisse cependant est tout-à-fait insuffisante pour les besoins du pays. Elle ne présente pas de sûreté suffisante contre le feu, et elle ne contient pas de local convenable pour les records et les documens qui doivent y être déposés en vertu de la loi. Les différens officiers n'ont pas de bureaux convenables, et il y aurait beaucoup à dire contre les arrangemens des chambres de la cour, les approches, les chambres des juges, etc., etc. Les soussignés ont fait préparer avec soin des plans et estimés qui montrent les améliorations qu'il serait possible d'effectuer, et ce qu'il en coûterait pour cet objet. Ces plans ont été soumis à l'examen des juges, protonotaires, etc., lesquels ont exprimé leur pleine approbation. La bâtisse, ainsi améliorée, serait très commode et bien adaptée, sous tous les rapports, à l'expédition des affaires. L'estimation s'élève à £8,144 15s. 10d., mais il faut observer que sur ce montant, au moins £2,165 19s. devraient, sous toutes circonstances, être dépensées en réparations extérieures et autres, et les altérations proposées ne pourraient, en aucun autre tems, être exécutées à meilleur marché.

L'attention des commissaires ayant été attirée sur le grand besoin de réparations et autres objets nécessaires à cette bâtisse, un des officiers du département en fit l'examen, et il fut constaté que la somme de £350 environ serait requise pour effectuer les objets désirés.

Ecole provinciale de navigation.—On reçut instruction d'examiner la bâtisse érigée pour servir de maison de douane dans cette cité, mais ci-devant occupée comme caserne par la police du fleuve, etc., dans le but de faire rapport si elle pourrait servir ou non aux fins de l'école provinciale de navigation qu'on se propose d'établir. Elle a été trouvée bien adaptée pour un établissement de ce genre, sur une petite échelle, tel qu'on paraît avoir eu en vue, si on en juge par le montant de l'appropriation, et sa position serait très-convenable. Une petite bâtisse en brique érigée près de cette maison de douane, a été achetée et appareillée pour la police du fleuve, avec des cellules à clés, des bureaux pour le magistrat et le surintendant de police, pour la somme de £268 7s. 6d., de manière que l'école de navigation, une fois organisée, pourra de suite prendre possession des lieux. Quelques altérations importantes peuvent être trouvées nécessaires, mais il ne serait pas désirable de les entreprendre avant d'avoir pu consulter les personnes qui seront à la tête de l'établissement.

Palais de justice et prison—Aylmer.—Les travaux de cette nouvelle bâtisse, ainsi que les bureaux extérieurs, sont complétés, et l'on s'est procuré l'ameublement nécessaire pour la transaction des affaires. Les murs environnans sont en voie de construction. Les contrats ont été exécutés à la satisfaction du département. Le montant dépensé à venir au 1er août courant, fut de £3,693 9s. 4d., et la somme requise pour tout finir sera d'environ £1,700. Le coût définitif de la bâtisse, y compris l'ameublement nécessaire, les murailles, portes, etc., sera donc d'environ £5,400, payables au moyen du revenu de certains honoraires, par débentures, tel que pourvu par un acte du parlement.

Palais de justice et prison—Sherbrooke.—On a récemment fait un examen de ces bâtisses pour constater ce qu'il en coûterait pour consolider une partie des planchers qui paraissent s'affaisser, et rebâtir ou réparer partie des murs environnans qui sont actuellement dans un état dangereux, faute d'avoir pris un soin suffisant lorsqu'on a posé les fondations. Pour effectuer cela, et quelques autres réparations de moindre importance, il en coûterait £296 9s. 10d. L'étendue trop limitée de terrein attachée à cette bâtisse, rend désirable d'y en ajouter encore dans le but de procurer aux prisonniers les moyens de prendre l'air. Les réparations à faire aux planchers et aux murailles ne peuvent pas être retardées.

Palais de Justice et Prison—Kamouraska.—La somme d'environ £400 a été dépensée pour cette bâtisse durant l'année 1851. Il n'y a eu aucune dépense en 1852; mais un *presentment* du grand jury, fesant allusion à la nécessité de quelques améliorations, fut transmis à ce département, et par lui référé au surintendant des prisons, occupé alors à faire une tournée générale d'inspection, et il est à présumer que cet officier fera mention de ce sujet dans son rapport général.

Palais de Justice et Prison de Rimouski.—Il n'y a eu aucune dépense de faite par ce département, depuis le dernier rapport annuel.

Grosse Ile.—Les bâtisses de l'établissement de la quarantaine requéraient quelque dépense avant l'ouverture de la navigation, pour les mettre en état de recevoir les émigrés qui auraient pu avoir besoin d'y être détenus. La somme de £706 8s. 11d., fut dépensée dans l'année 1851, et £257 6s. 0d. depuis le commencement de cette année jusqu'au premier août courant. Ces bâtisses sont maintenant en aussi bon état que l'admet leur genre de construction.

Les soussignés se flattent que l'exposé qui précède, avec les divers tableaux qu'on trouvera dans l'appendice, fourniront tous les renseignemens qu'on pourrait désirer, sur l'état actuel des Travaux Publics, dont la construction ou l'entretien ont été sous les soins de ce département durant l'année qui vient de s'écouler, sur les dépenses qu'ils ont occasionnées et qu'ils devront encore occasionner avant leur entière confection.

Ils prennent maintenant la liberté de soumettre leurs vues et leurs suggestions relativement à divers sujets qu'ils regardent comme indispensables pour recueillir tous les avantages qu'on a droit d'attendre de la dépense considérable faite sur les canaux, et autres ouvrages publics de la province, et qui tendraient, d'une manière très importante, au développement des ressources du pays; et par conséquent méritent hautement la considération de l'exécutif et de la législature.

D'après le tableau des droits de péage on verra que, tandis que la canal Welland rapporte $3\frac{13}{20}$ par cent sur la somme qu'il a coûtée, les canaux du St. Laurent ne rapportent que $1\frac{7}{20}$ par cent.

Nos prédécesseurs, dans leur rapport à Votre Excellence en 1848, indiquèrent ce qu'ils croyaient pouvoir remédier à ce déficit dans le revenu des canaux du St. Laurent en recommandant la construction d'un canal de navigation entre le St. Laurent, et le lac Champlain, et déclarant « que la prompte construction de ce « canal était impérieusement demandée, dans le but de compléter la chaîne de ca- « naux déjà en opération, et les rendre profitables et avantageux pour la province.»

Les sousignés concourent parfaitement dans cette recommandation, et demandent la permission d'exposer à Votre Excellence les raisons qui leur font croire *que tant que ce canal ne sera pas construit* nos canaux ne pourront rivaliser avec succès avec le canal Erié et les Railroads du sud du St. Laurent pour le transport des articles de commerce entre les bords de l'Atlantique, aux Etats-Unis, et les Etats de l'Ouest et le Canada.

L'objet d'un canal entre le Lac Champlain et le St Laurent est de procurer une route à meilleur marché, plus expéditive, (parcequ'il y aura moins de transbordemens) et plus désirable pour cet immense trafic qui passe maintenant sur la rivière Hudson, sur les Railroads de la Nouvelle-Angleterre ou de New-York, venant des Etats de l'Ouest ou du Canada ou se rendant dans ces régions, et par ce moyen attirer le trafic sur les canaux du St. Laurent qui aujourd'hui en conséquence de la compétition des canaux d'Oswégo et de l'Erié, et des Railroads d'Ogdensburgh et autres, et le manque d'une liaison entre eux et le lac Champlain, obtiennent à peine la plus minime portion du commerce de transit entre l'Atlantique et les Etats de l'Ouest ou le Canada.

Pour ce commerce de transit, ce canal rivalisera avec les canaux Erié et Oswego ; avec les chemins de fer de l'Erié, de New-York, du Centre, d'Ogdensburgh et du Cap Vincent. Si on peut démontrer que cette route serait aussi désirable pour le commerce de transit qu'aucune de celles qu'on vient de mentionner, son importance, aussi bien que son influence sur les canaux dispendieux du St. Laurent, ne sauraient être exagérées.

En procurant une communication directe, à bon marché, et très vaste entre les grands districts à bois de l'Outaouais, du haut et du bas du St. Laurent, et le plus grand marché à bois du monde—celui d'Albany et Troy—ce canal augmentera la valeur d'un de nos objets d'exportation, dont l'importance augmente chaque année, dont nous contrôlerons presqu'exclusivement l'approvisionnement et que nous pouvons, au moyen de nos grandes communications par eaux, transporter avec la plus grande facilité, et de la manière la plus prompte et la moins dispendieuse, à l'entrée de ce canal.

En liant le lac Champlain au St. Laurent sur une échelle effective nous ouvrons aux districts de ce lac un chemin à la Mer, *vià* Québec, et leur procurons par la rivière Richelieu, une route plus courte et moins dispendieuse pour les importations de charbon, de fer, sel, poisson, huile, etc., articles qui peuvent être déposés à Québec à des taux moins élevés qu'à aucun port Américain en conséquence du montant considérable de tonnage qui y entre en lest à la recherche de cargaisons de bois.

Après avoir mentionné l'objet de cet ouvrage, il convient de montrer quel est ce commerce pour lequel il aura à faire de la concurrence. A cette fin il faut mettre de côté tout le trafic local ou qui se fait le long de la route pour ne prendre en considération que le commerce de transport des Lacs Erié et Ontario à la rivière Hudson et *vice versâ*, tel que le font voir les rapports des canaux de l'Etat de New-York pour 1851.

Le montant du tonnage de transit arrivé des Etats de l'Ouest ou du Canada à la Rivière Hudson, à été comme suit :—

	Tonneaux.	Valeur.
Venant par la voie de Buffalo	626,655	$19,264,185
do do Oswego	340,338	7,664,130
do do Whitehall	80,691	1,457,662
Total	1,047,684	$28,385,977

Durant la même année, 47,107 tonneaux sont arrivés par les chemins de fer ; une petite partie peut être regardée comme appartenant au commerce de transit. Dans les 80,691 tonneaux arrivées par la voie de Whitehall sont comprises les exportations du Lac Champlain qu'on ne peut pas compter comme partie du futur commerce du canal projeté. En regard de cette déduction cependant il faut placer les produits reçus du St. Laurent pour la consommation du Lac Champlain, ou pour Boston et l'intérieur de la Nouvelle-Angleterre, qui ne peuvent être mentionnés dans les retours du canal de Whitehall ; et aussi toutes les affaires de transit du Railroad de New-York et de l'Erié.

Le commerce de descente (*down trade*) entre le St. Laurent et les lacs d'un côté, et la rivière Hudson et les Etats de l'Est de l'autre côté peut donc en toute sureté être évalué à un million de tonneaux de 2000 livres, ouverts à la compétition de ce canal.

Le montant des articles de commerce qui ont laissé la Rivière Hudson pour les Etats de l'Ouest et le Canada, en 1851, fut de :

	Tonneaux	Valeur.
Par la voie de Buffalo	99,918	$62,963,640
do Oswego	74,981	
do Whitehall	17,124	pas de retour.
	192,023	

En outre de ce qui précède, 29,112 tonneaux dont une partie pouvait appartenir au commerce de transit, sont partis par le chemin de fer. Sur les 17,124 tonneaux transportés par la voie de Whitehall, il faut déduire la partie laissée sur le lac Champlain ; mais lorsqu'on prend en considération les exportations de la Nouvelle-Angleterre (*via Burlington et Rouse's Point,*) dans l'Ouest, avec le commerce d'exportation de transit de New-York par la voie du chemin de fer de l'Erié on peut estimer le trafic « en montant » ouvert à la compétition du canal projeté à 200,000 tonnaaux de 2000 livres.

L'augmentation qu'on a droit d'attendre de ce commerce de transit, peut être appréciée par ce qui suit :—

« Tonnage de transit, » par Buffalo et Oswego (y compris Whitehall)—

	Tonneaux.		Tonneau.
Trafic « descendant »—En 1845	304,551	« montant »	58,455
Do —En 1851	986,993	do	192,023

La construction de chemins de fer dans les Etats du Nord-Ouest, au taux de 1,000 milles par année, doit tendre à augmenter ce commerce de transit, non seulement en développant le commerce local mais en détournant une vaste part du commerce de l'Ohio et du Mississipi vers la route des lacs, de préférence à la route de la Nouvelle-Orléans—dont le commerce, par cette concurrence, est déjà devenu stationnaire.

Après avoir montré le montant actuel et l'augmentation probable du commerce entre les deux points que ce canal devrait mettre en communication, par une route plus vaste, plus expéditive, et à meilleur marché, la question suivante est de savoir quelle portion de ce commerce on pourrait reclamer pour la route projetée.

Le canal Welland a augmenté en plus grande proportion que le canal Erié, et la route d'Oswégo a progressé plus rapidement que celle de Buffalo, simplement parce qu'elle raccourcit la route par le canal, de 154 milles, et augmente la longueur du trajet par les lacs sans allonger le tems du transit.

L'accroissement progressif du commerce de transit par Buffalo et Oswégo, est montré comme suit :—

		Tonneaux.		Tonneaux.
1840	Buffalo, en descendant	138,101	Oswégo, en descendant	20,047
1845	do do	533,133	do do	110,318
1850	do do	498,611	do do	275,247
1851	do do	626,655	do do	340,338
	Marchandises en montant.			
1840	Buffalo	18,863	Oswégo	3,192
1845	do	37,713	do	11,905
1850	do	79,405	do	35,091
1851	do	99,918	do	74,981
	Trafic de sel en montant.			
1840	Buffalo	11,156	Oswégo	22,481
1845	do	10,877	do	32,596
1851	do	15,042	do	56,871

En fesant la part d'Oswégo, il faut, il est vrai, prendre en considération l'augmentation du commerce canadien sur le lac Ontario, mais l'augmentation des droits de péage sur le canal Welland, tandis que le commerce des canaux du St Laurent est presque stationnaire, prouve incontestablement que la route du canal de Welland est la route favorite pour le commerce de transit américain.

Il y a donc toute raison de croire que si on pouvait faire une route qui réduisît la longueur de la navigation par les canaux, *non seulement de 154 milles, mais de 297 milles*, moyennant un seul transbordement, et sans allonger le tems du transit, son succès serait aussi certain que celui du canal Welland. Même avec d'égales conditions, le même tems pour le trajet, les mêmes frais de transport, la route qui a le moins de navigation de canaux sera toujours préférée ; et avec un commerce flottant aussi considérable, toute route qui présenterait seulement d'égales facilités, obtiendrait indubitablement une bonne partie du commerce actuel et futur,—tandis que, dans le cas du canal proposé, cette route ne pourrait manquer d'avoir la préférence pour le transport des provisions et des manufactures entre la Nouvelle-Angleterre et l'Ouest, et pour le transport des émigrés.

Le chemin de fer d'Ogdensburgh a transporté, depuis l'ouverture de la navigation jusqu'au 24 juillet 1852, entr'autres articles venant du St. Laurent, les suivants :—

Farine	310,412	barils.
Blé	210,120	minots.
Céréales	155,279	do

Ce chemin transporte la farine d'Ogdensburgh à New-York pour 2s. le baril, et d'Hamilton pour seulement 2s. 3d. Le coût entier d'un baril de fleur du lac Erié à New-York par cette route est d'environ 3s. 3d., prix aussi réduit que par aucune autre route. La portion de ce prix assignée au chemin est une fraction au-dessous de 10d. par baril : le prix de Rouse's Point à New-York étant de 1s. 3d., et de Whitehall, 9d. par baril. Le coût actuel d'Ogdensburgh à Whitehall est donc de 1s. 3d. le baril, et ceci est ce qui resterait pour le paiement d'un fret extra à un vaisseau qui passerait à Ogdensburgh et continuerait jusqu'à Whitehall. Or, 9d. par baril serait un fret additionnel suffisant pour une cargaison des lacs Erié ou Ontario qui irait par un canal jusqu'à Whitehall. Pour entrer en concurrence, le chemin de fer serait obligé de baisser son prix actuel de 1s. 3d. à 9d., dont 3d. au moins devraient être donnés pour le transport sur le lac Champlain, laissant seulement 6d. pour couvrir les frais de transport, d'emmagasinage, de chargement et déchargement.

On éviterait les deux transbordemens de la route du railroad, ce qui compenserait pour l'assurance à payer en descendant le St. Laurent ; et quant au *tems*,—si les rapides deviennent la route pour le fret comme ils le sont maintenant pour les malles et les passagers,—on pourrait livrer une cargaison par le canal projeté, plus tôt qu'on ne pourrait le faire par le railroad, vû les chargemens et déchargemens.

La compétition du chemin de fer pour le commerce de descente n'est donc pas à redouter.

Quant à la capacité de cette route comme rivale du canal de l'Erié,—la meilleure route sans contredit entre l'Hudson et l'Ouest,—il paraît d'après le rapport officiel des canaux de New-York, que le tonnage moyen des bateaux entre Buffalo et Albany, en 1851, fut de 78 tonneauxpar bateau, le tems requis pour le transport, huit jours et demi, et le coût de transport, y compris le droit de péage, 49 cents, dont 23¼ pour le droit, laissant 25¼ cents ou 1s. 3¼d. pour le fret. Le plus haut prix du fret fut de 1s. 0⅛d. en août, et le plus haut, de 1s. 10d. le baril, en novembre.

En partant de Cleveland, il y a le fret jusqu'à Buffalo,—le transbordement à Buffalo,—49 cents pour le transport à Albany,—et le fret d'Albany à New-York. Le coût moyen du transport d'un baril de fleur de Cleveland à New-York, ne pourrait pas être au-dessous de 3s., ce qui, par conséquent, devrait être le prix moyen du transport par la voie du canal projeté. On a déjà vu que 9d. est le coût d'un baril de Whitehall à New-York,—reste donc 2s. 3d. pour couvrir le fret de Cleveland à Whitehall.

Si les droits de péage sur les canaux de New-York étaient entièrement abolis, le fret moyen de Cleveland à New-York serait de 36½ cents, et celui de Whitehall à New-York 11½, ce qui laisserait 25 ou 1s. 3d. courant pour le transport de Cleveland à Whitehall, sans droit ; ou un fret de 1s. 8d., en payant le droit de péage actuel sur le canal Welland et les canaux du St. Laurent.

Avec une cargaison en retournant, un fret clair de 1s. 3d. par baril serait un prix suffisant.

Quant au *tems*, un steamer à fret de Cleveland, descendant les rapides jusqu'au lac St. Louis, livrerait sa cargaison en quatre jours et demi à Whitehall, d'où il atteindrait Albany une journée et demie plus tard, ce qui ferait six jours contre neuf jours par Buffalo et le canal Erié.

Jusqu'à présent la question a été considérée sans faire attention à l'agrandissement probable du canal de Whitehall à Troy.

La certitude où l'on est que cet agrandissement devra suivre l'apparition de brigantins et de steamers de 500 tonneaux au pied du lac Champlain, venant des lacs Michigan, Huron, Erié et Supérieur, est un des plus forts encouragemens à la construction de ce canal. L'influence de la cité de New-York suffirait pour l'exécution de cet agrandissement ; et lorsqu'on aura ouvert une route qui permettra au fret de transit de faire, sans transbordement, le trajet entre le vaste entrepôt commercial de l'Amérique et les lacs, cette route ne peut manquer de venir aussitôt à la tête de toutes les autres communications existantes ou praticables, durant la saison de la navigation intérieure.

Le coût d'un canal de dimensions convenables, pour lier les eaux du St. Laurent et du Lac Champlain, est estimé à £460,000—dépense qui dans l'opinion de tous serait amplement compensée par l'augmentation de revenu qui en résulterait certainement, tant directement que par l'effet qu'elle aurait de mettre en pleine activité tous les autres canaux du St. Laurent, comparativement peu employés à l'heure qu'il est.

Comme on a beaucoup parlé et écrit sur la concurrence des chemins de fer, cette matière mérite considération. Au Cap Vincent et à Ogdensburgh, deux chemins de fer ont été établis pour détourner le commerce des canaux du St. Laurent et d'autres seront encore établis par la suite. Il a été prouvé que les chemins de fer transportent des articles à des taux qui ne rémunèrent aucunement, ou qui les mettent en perte, dans le but de bâtir leurs points de terminaison, d'obtenir un commerce de retour, et l'augmentation dans le nombre des passagers qui accompagne toujours un commerce considérable, et avec ces considérations on espère parvenir à compenser les pertes.

Le coût actuel du transport par les chemins de fer n'est pas déterminé : il doit varier suivant la nature du chemin et celle du trafic. Avec des rivières comme celle du St. Laurent le coût du transport par les chemins de fer sur de longues distances, doit être plus élevé pour rapporter un profit que ne le serait le transport par eau ; mais là où la route par eau fait éviter les transbordemens et les délais qui en résultent, le railroad a encore un plus grand désavantage.

De plus le manque de capacité comparative pour un commerce comme celui que nous avons en vue doit faire disparaitre toute anxiété qu'on pourrait avoir pour nos canaux à cause de la concurrence offerte par les chemins de fer.

L'ingénieur d'Etat de New-York dans son rapport annuel de février 1851, dit :—

" *Il faudrait six chemins de fer à double voie, ayant quelque autre trafic* " *qui leur rapportât des dividendes,* pour faire les affaires que le canal Erié a faites "en 1850. Ces affaires exigeraient une dépense de 10,000 chars et 400 engins, au " prix de, disons, $9,000,000; et si elles étaient restreintes à un seul chemin elles " demanderaient l'arrivée journalière de quatre milles et demi de convois à être " chargés, déchargés et renvoyés, supposant que chaque convoi et chaque char fût " pleinement chargé. Tous les chemins de fer actuellement construits ou en voie " de construction, pour lier Baltimore, Philadelphie, New-York et Boston à l'Ouest, " seraient surchargés, si tout le fret qui passe sur le canal Erié était tout à coup " reporté sur eux."

COMMERCE DE BOIS.

Le montant de bois scié amené à la rivière Hudson, en 1851, fut de 427,000,000 pieds, ou 111,731 tonneaux, évalués à $7,200,000.

De ce montant, au moins 200,000 tonneaux venaient du Canada, et auraient pu presque tous être transportés par la route du lac Champlain. Le tems ne peut être éloigné ou au moins 1,000,000 de tonneaux de bois scié seront en demande sur le marché de la rivière Hudson, et lorsque la proportion envoyée du Canada atteindra 500,000 tonneaux, les droits de péage sur cet article seul en passant par ce canal, paieront l'intérêt d'au moins la moitié du coût de sa construction ; outre le bois scié déjà mentionné, de grandes quantités de bois pour la confection des railroads, de bardeaux, douves, bois de charpente et de clôtures, passeraient par cette route pour aller approvisionner les populeux districts situés au sud du dit canal.

L'ouverture d'une route donnant une communication directe entre New-York et les lacs, ferait surgir des villes canadiennes sur les lacs Erié et Ontario, comme ports destinés à l'exportation, non seulement du pays situé en arrière, mais des produits américains venant du lac Huron, et procurerait une route sans rivale pour le fret de retour (*return freight*).

Nous attirerons maintenant l'attention sur l'état actuel de la navigation par la voie des canaux de l'Outaouais, comme se rattachant à la construction d'un canal pour faire communiquer les eaux du lac Champlain avec celles du St. Laurent.

Les canaux du Rideau et de Grenville, actuellement possédés et régis par le département de l'*Ordnance* sous la direction impériale, lient Kingston à Montréal par la navigation intérieure, *via* Bytown,—le seul ouvrage provincial sur la route étant l'écluse de Ste. Anne, de la même dimension que celles des canaux de Beauharnais et de Lachine. Les écluses sur les canaux du Rideau et de Grenville sont de 134 pieds sur 33, *à l'exception de trois écluses* sur le canal de Grenville, qui sont de 100 pieds sur 19 pieds. L'agrandissement de ces trois écluses sur le canal de Grenville, est un objet de grande importance comme moyen de rendre moins dispendieux le transport sur l'Outaouais, et qui permettrait à un vaisseau de 300 tonneaux de charger sur le canal du Rideau ou à Bytown, et de se rendre directement, et sans transbordement, jusqu'à Whitehall.

Les soussignés croient que moyennant une dépense peu considérable le canal du Rideau pourrait être lié au Lac de la Chaudière au-dessus de Bytown, par un petit canal d'environ cinq milles, ou par l'amélioration de la rivière, et ils recommandent en conséquence qu'autorité leur soit donnée de faire faire une inspection et un estimé de la dépense probable de l'agrandissement des trois écluses du canal de Grenville auxquelles il est fait allusion, de la dépense probable de l'établissement d'une communication entre le canal du Rideau et le Lac de la Chaudière, ainsi qu'entre le Lac des Chats et la Chaudière, ou de l'amélioration de la Rivière tel qu'on le jugera désirable.

STEAMERS TRANSATLANTIQUES.

Un contrat a été conclu (sujet à l'approbation du Parlement) avec une maison bien connue de Liverpool, en vertu duquel une ligne de puissans steamers à hélices, du port de pas moins de 1500 tonneaux, et capables de transporter 1000 tonneaux de cargaison, commencera à voyager à l'ouverture de la navigation le printems prochain, entre les ports de Liverpool et Québec et Montréal, tous les quinze jours, durant la saison de la navigation, et Portland, dans l'Etat du Maine, durant les mois de l'hiver, au prix de £24,000 sterling par année pour quatorze voyages d'une fois tous les quinze jours au St. Laurent, et cinq voyages mensuels à Portland ; ou pour £16,000 sterling, pour douze voyages mensuels. La compagnie du chemin de fer du St. Laurent et de l'Atlantique en Canada, la compagnie du chemin de fer de l'Atlantique et du St. Laurent dans les Etats-Uuis, et la cité de Portland paient aux contracteurs une somme de £5000 sterling, comme partie des sommes susdites : laissant la somme à être payée annuellement par la Province pour le tems du contrat, à £19,000 sterling pour la ligne de tous les quinze jours au St. Laurent, et la ligne mensuel à Portland en hiver ; ou la somme de £11,000 sterling, dans le cas où les steamers ne feraient qu'un voyage par mois au St Laurent, durant le tems de la navigation, et un voyage par mois à Portland en hiver. Le contrat est fait pour un terme de sept années, à commencer au départ du premier steamer de Liverpool. Le prix de chambre ne devra pas excéder £21 sterling pour chaque passager, la seconde chambre sera de £12 12s., et le passage de pont £6 6s. Le fret de Liverpool ne devra pas excéder 60s. par mesure de tonneau ; le fret des produits ne devra pas non plus excéder les taux courants des vaisseaux voiliers.

On pense que l'établissement de cette ligne de steamers de Liverpool, aura l'effet de faire passer par le St. Laurent, une partie de ce vaste flot d'émigration destiné aux Etats de l'Ouest, qui reflue maintenant dans les villes des Etats-Unis qui bordent la mer, et d'attirer l'attention publique sur les facilités étonnantes qui existent par le St. Laurent pour le transport du fret et des passagers. Plus de 300,000 émigrés arrivèrent en 1851, au port de New-York. Ces émigrans arrivèrent dans 2,211 vaisseaux, mesurant, en tout, au-dessus d'un million de tonneaux. Le fret de ces vaisseaux en retournant dans la Grande-Bretagne, consiste principalement en farine et en grain, et la compétition parmi un si grand nombre de vaisseaux a réduit le prix du fret à plus de moitié des taux moyens des années précédentes. Les taux du fret entre Québec et la Grande-Bretagne, sont d'environ 100 pour cent plus élevés qu'entre New-York, et la Grande-Bretagne, ce dont on peut se rendre compte par le fait que le grand nombre de vaisseaux venant à Québec arrivent en lest, n'emmenant point d'émigrants, et il faut que le fret en retournant soit suffisant pour payer les deux voyages. On ne devrait donc pas perdre de vue l'influence de l'émigration sur la réduction des dépenses de transport de nos produits agricoles, et sur l'avancement des intérêts de nos chemins de fer et de nos canaux, qui devront les transporter aux ports d'embarquement ; au contraire, on devrait prendre tous les moyens de s'assurer d'aussi grands avantages. Le mode de transport, expéditif, commode et peu dispendieux, fourni aux passagers par cette ligne de steamers, fera beaucoup pour tourner l'attention vers la route du St. Laurent, où, à l'arrivée du steamer transatlantique ou du vaisseau voilier, l'émigrant rencontrera de vastes et commodes vaisseaux à vapeur qui le débarqueront à n'importe quel port sur les lacs d'en haut. On croit cependant que cette ligne de steamers ne sera que le commencement de ce trafic, et qu'avec le désir de tenir constamment la navigation du St. Laurent libre de toute restriction, cette route deviendra de plus en plus populaire.

On a aussi conclu avec les contracteurs des arrangemens pour faire circuler en Angleterre, et dans d'autres parties de l'Europe, des livres, pamphlets, ou cartes, relatifs au Canada, que le Gouvernement jugerait à propos d'envoyer pour cette fin, et aussi de les faire traduire, dans diverses langues, suivant qu'on le désirera, et de les faire distribuer, sans exiger rien de plus que les frais d'impression. Une mesure comme celle-là est nécessaire, si l'on considère l'ignorance extrême qui prévaut chez l'étranger à l'égard des ressources minérales et agricoles du Canada, de son progrès et de ses avantages comme lieu d'établissement.

Le contracteur est aussi obligé de transporter une malle et un officier de la malle, sans exiger rien de plus que la somme déjà mentionnée. Si l'on en croit des recherches très-minutieuses il y a une route sûre pour les steamers et les vaisseaux voiliers par le détroit de Belle-Isle. La distance de Liverpool à Québec, en passant par ce détroit, est d'environ 400 milles plus courte que celle de Liverpool à Boston, ce qui, en mettant en compte la distance d'eau calme entre le Détroit et Québec, permettra de faire une économie de deux jours et demi dans le voyage, et comme les malles anglaises arrivent ordinairement à Québec de 36 à 48 heures après leur arrivée à Boston, il n'y a rien qui empêche de croire que la ligne de steamers proposée ne pût transporter ses malles à Québec et à Montréal, en moins de tems qu'elles n'en mettent à venir maintenant à travers le territoire américain, et qu'avec des vaisseaux de même vitesse que ceux qui voyagent maintenant entre Liverpool et New-York et Boston, les malles d'Angleterre, avec des railroads depuis Québec jusqu'à Détroit, ne pussent non seulement être apportées dans tout le Canada en moins de temps qu'à présent, mais encore être transmises dans les Etats de l'Est et de l'Ouest, comme par la route la plus expéditive. Pour rendre la route par le Détroit de Belle-Isle praticable, cependant, il faudrait un plus grand nombre de phares. A présent il n'y a qu'un seul phare sur toute la rive nord du fleuve depuis Québec jusqu'à l'entrée du Détroit de Belle-Isle, distance d'à peu près 800 milles. Il est donc recommandé qu'un phare soit placé sur Belle-Isle, un au Cap Normand—un à la Baie Forteau—un sur la Pointe Ouest d'Anticosti, un sur la rive nord d'Anticosti et un autre sur la rive nord principale, vis-à-vis. Pour l'érection de quelques-uns de ces phares, il faudrait l'autorisation du Gouverment de Terreneuve. Ceci, avec les autres phares pour lesquels des appropriations ont été faites, ferait beaucoup pour améliorer la navigation du bas du St. Laurent, et diminuer le coût de l'Assurance sur les vaisseaux et les cargaisons, améliorations auxquelles aucune classe des habitans du pays ne sont plus intéressés que les agriculteurs.

VAISSEAUX REMORQUEURS SUR LE ST. LAURENT.

Le contrat qui avait été passé dans le printems de 1851, pour une ligne de vaisseaux remorqueurs sur le St. Laurent, au prix de £1,750 pour la saison, ne fut pas plus efficace qu'en 1850, bien qu'on eût été plus rigoureux dans les termes du contrat. On s'est beaucoup plaint des contracteurs, pour détention, et l'insuffisance des steamers employés; et après s'être enquis, les sousignés croyant que la ligne n'avait pas rempli le but pour lequel elle avait été établie, jugèrent à propos de laisser le touage des vaisseaux à la compétition publique, convaincus que ce serait le moyen de faire connaître les modes les plus efficaces de transport sur le St. Laurent. Les résultats font voir que, malgré ces circonstances défavorables et l'ouverture tardive des canaux, et le grand nombre de vaisseaux qui attendaient à cette époque à leur extrémité Est, le système libre a fonctionné plus favorablement que n'avait fonctionné le système en vigeur dans la saison precédente, attendu qu'on a transporté journellement un tonnage plus considérable de fret, et que le fret est devenu plus bas que l'année précédente, comme on le verra en référant au tableau No. 11, dans l'appendice.

RAPIDES DU ST. LAURENT.

Dans le dernier rapport de ce département, les commissaires en fesant allusion aux améliorations des rapides du St. Laurent, déclarèrent qu'ils étaient convaincus de leur importance, et qu'on devait les effectuer; mais comme ils ne considéraient pas suffissante la somme de £15,000 à laquelle on estimait leur coût, ils ne furent disposés à recommander aucune dépense jusqu'à examen ultérieur, et jusqu'à ce que le montant réel de la dépense fût pleinement constaté.

Durant la présente saison l'inspection et examen nécessaires ont été entrepris et quoique non-encore completés, sont assez avancés pour permettre à l'ingénieur du département de faire un rapport *ad interim* (qu'on trouvera dans l'appendice) avec une estimation, se montant à £30,000—dépense qui dans l'opinion des soussignés, serait pleinement compensée par l'obtention d'un chenal sûr et facile dans lequel pourraient naviguer les vaisseaux tirant dix pieds d'eau.

CANAL PROJETÉ AU SAULT STE. MARIE.

L'attention publique a été récemment attirée sur le sujet de la construction d'un canal pour éviter les chûtes du Sault Ste. Marie et améliorer la navigation entre les lacs Huron et Supérieur; on y a fait allusion à plusieurs reprises pendant la dernière session de la Législature.

Il existe une grande différence d'opinion sur la question de savoir ce qu'il faudrait faire—les uns considèrent que le canal seul est néssesaire—d'autres représentent qu'il faudrait beaucoup d'améliorations dans la rivière et dans le Lac George; parmi ces derniers est un des soussignés (M. Killaly,) qui a fait une inspection préliminaire; mais comme ses instructions se bornaient à l'ouvrage immédiatement nécessaire au Sault, les autres améliorations requises n'ont été observées qu'en passant.

Comme il fallait évidemment des renseignemens complets, explicites, avant qu'on pût faire prudemment aucune proposition, une inspection fut entreprise par ce département, avec l'autorité du Conseil, afin que le projet pût être exposé devant le public d'une manière satisfesante. L'inspection n'est pas encore complétée, mais on trouvera dans l'appendice un rapport *ad interim* de M. Keefer, l'ingénieur du département, qui en a eu la direction. Le rapport est accompagné d'une carte générale et d'un estimé approximatif, ce dernier se montant à £120,000.

Quoiqu'il puisse exister et qu'il existe réellement des doutes sur la question de savoir si le commerce immédiat qui passera par un canal construit au Sault Ste. Marie, sera suffisant pour subvenir aux frais de construction et aux dépenses d'entretien et de régie, cependant il faut considérer que le commerce des vastes régions qui bordent le lac Supérieur ne peut être ouvert que par sa construction, qu'au moyen de ce canal on ajoutera à la navigation déjà sans rivale du St. Laurent et des lacs une nouvelle longueur d'environ 500 milles, ou, en comptant les côtes du lac Supérieur, de pas moins de 2000 milles et qu'un tel canal tendrait à augmenter le commerce des canaux d'en bas. Les soussignés regardent donc sa construction, et le tems où elle devra être exécutée, comme des questions qui méritent hautement la considération de la Législature.

NAVIGATION DE LA GRANDE-RIVIÈRE.—(GRAND-RIVER.)

Au commencement de juillet dernier, divers documens relatifs à cette navigation furent référés par l'hon. Secrétaire Provincial à ce département pour examen et rapport: l'objet de ces documens était de presser le Gouvernement de recommander au parlement de s'emparer de la navigation de la Grande-Rivière comme ouvrage provincial; ce qui pouvait principalement engager à cela, suivant ces documens, était, qu'une grande partie des fonds des Sauvages était placée là; que l'état de la navigation était tel, qu'elle requérait des réparations immédiates et considérables, et des améliorations ultérieures, sans lesquelles, il est à craindre que les fonds ainsi placés ne soient sacrifiés.

Les soussignés ont fait rapport que le sujet était, dans leur opinion, principalement de la juridiction du ministre des finances; et dans la vue de mettre cet officier en état de juger de l'expédience de s'emparer de la navigation, ils recommandèrent qu'il en fut fait une inspection minutieuse et un examen par les officiers employés sur l'établissement du canal Welland, accompagné d'un rapport complet sur l'état actuel des travaux—ce qu'il en coûterait pour les réparer d'une manière efficace—et l'effet probable que les trois lignes de chemins de fer, actuellement en voie de construction dans son voisinage, auraient sur son revenu. On a reçu récemment l'autorisation de faire cette inspection, et des instructions ont été données en conséquence. Tant qu'on n'aura pas reçu les renseignemens qui devront résulter de cette inspection, les soussignés ne sont pas prêts à donner leur opinion sur la question de savoir s'il convient de s'emparer des ouvrages.

LIGNE DU CHEMIN DE FER DITE DU GRAND TRONC.

Les soussignés n'ont qu'à ajouter que les commissaires du chemin de fer les ayant requis de permettre à M. Samuel Keefer, l'ingénieur du département, de faire un examen et rapport sur les diverses lignes de chemins de fer maintenant en voie de construction, et pour lesquelles la garantie provinciale a été donnée, les services de ce monsieur ont, en conséquence, été mis à leur disposition pour cette fin. M. Keefer a déjà examiné les routes du *Great Western*, et des chemins de Toronto et de Huron. Il déclare que la ligne et le mode de construction du premier sont satisfsans; quant au dernier, il a eu occasion de remarquer beaucoup d'erreurs, mais comme plusieurs des points auxquels il fit des objections ont été rectifiés ou sont pour l'être, et que les directeurs ont manifesté leur bonne disposition à adopter les suggestions faites par l'ingénieur, les soussignés ont toute raison de croire que cela tendra d'une manière importante à assurer la bonne régie de cet ouvrage, et l'amélioration dans les travaux qui sont encore à faire, et auxquels les propriétaires, aussi bien que le public, sont grandement intéressés.

Le tout respectueusement soumis.

JOHN YOUNG,
Commissaire en chef des Travaux Publics.

HAMILTON H. KILLALY,
Assistant Commis. des Travaux Publics.

DÉPARTEMENT DES TRAVAUX PUBLICS,
QUÉBEC, août 1852.

APPENDICE

AU

RAPPORT DES COMMISSAIRES

DES

TRAVAUX PUBLICS.

AOUT 1852.

No. 1.

TABLEAU des travaux productifs du Canada, sous le contrôle du département des Travaux Publics, fesant voir ce qu'a coûté la construction d'iceux, à venir au premier janvier 1852, et la dépense encourue pendant l'année 1851.—Aussi les frais encourus pour la collection, les réparations, et la régie de ces travaux, avec le montant total du revenu, et le profit net pour 1851.

TRAVAUX.	Coût de construction, jusqu'au 1er janvier 1852.									Dépensé en 1851, mais inclus dans la colonne précédente.		
	Avant l'union.			Depuis l'union.			Coût total.					
CANAUX.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Welland	423223	18	4	985792	5	2	1409016	3	6	30968	10	10
St. Laurent, en général	....	..	..	10451	1	2	....	..	..	2937	9	8
Williamsburgh	....	..	..	252918	3	6	....	..	..	1506	11	1
Cornwall	362134	11	10	94677	16	4	....	..	..	5761	9	10
Beauharnais	....	..	..	332946	19	9	....	..	..	4781	5	0
Lachine	99601	0	9	398101	1	4	1550830	14	8	21715	10	5
St. Ours	....	..	..	36138	8	11	36138	8	11	3470	2	1
Chambly	80610	7	11	16863	6	3	97473	14	2	9905	19	2
Baie de Burlington	31089	0	5	50956	14	3	82045	14	8	2320	0	0
Ste. Anne	4965	0	1	17797	15	1	22762	15	2	91	9	10
GLISSOIRES, ETC.												
Outaouais	....	..	..	83330	1	5	83330	1	5	449	9	7
Districts de Trent et Newcastle	41295	0	3	74411	7	8	115706	7	11	25	19	0
St. Maurice	....	..	..	534	10	0	534	10	0	534	10	0
HAVRE.												
Port Stanley	....	..	..	21125	12	8	21125	12	8	2342	17	10
PORTS.												
Bytown	....	..	..	16612	3	11	16612	3	11	....	..	..
PHARES.												
Intérieur	Pas cons-	ta	té.	12741	15	0	12741	15	0	1374	4	11
£	1042918	19	7	2405399	2	5	3448318	2	0	88185	9	3

No. 1.—(*Continuation.*)

Revenu brut en 1851.						Coût de collection, réparations, administration en 1851.									Revenu net en 1851.			Perte, la dépense excédant le revenu.		
Des péages.			Des rentes.			Collection.			Réparations et administration.			Total.								
£	s.	d.	£	s	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
48556	14	5	1903	12	3	719	3	9	12397	8	11	13116	12	8	37343	14	0	....	..	..
21112	15	3	1699	16	3	1412	17	3	10498	12	2	11911	9	10	10901	1	8	.....	..	..
....	..	..	....	..	..	......	..	..	....	..	..	......	..	..	......	..	..	.....	..	..
....	..	..	....	..	..	......	..	..	....	..	..	......	..	..	......	..	..	.....	..	..
....	..	..	....	..	..	......	..	..	....	..	..	......	..	..	......	..	..	.....	..	..
....	..	..	....	..	..	......	..	..	....	..	..	......	..	..	......	..	..	.....	..	..
65	2	7	.....	..	..	50	0	0	271	6	6	321	6	6	.....	..	..	374	0	8
1816	14	8	28	5	0	164	6	1	1798	10	4	1962	16	5						
4114	5	1	......	..	..	190	15	0	203	16	1	394	11	1	3742	10	10	.....	..	..
701	17	3	......	..	..	71	14	5	119	1	2	190	15	7	511	1	8	.....	..	..
6865	8	1	......	..	..	270	7	4	1275	12	9	1546	0	1	5319	8	0	.....	..	..
933	19	2	......	..	..	160	9	6	731	4	1	891	13	7	42	5	7	.....	..	..
....	..	..	......	..	..	......	..	..	....	..	..	......	..	..	......	..	..	.....	..	..
1215	15	11	......	..	..	......	..	..	996	13	2	996	13	2	219	2	9	.....	..	..
703	1	2	......	..	..	44	0	0	....	..	..	44	0	0	659	1	2	.....	..	..
937	6	10	......	..	..	......	Voir État No. 4.					......	..	..	......	..	..	.....	..	..
£87023	0	5	3631	13	6	3083	13	9	28292	5	2	31375	18	11	58738	5	8	374	0	8

THOMAS A. BEGLY.
Secrétaire.

Département des Travaux Publics,
Québec, août 1852.

No. 2.

TABLEAU des travaux improductifs du Canada à la charge du département des Travaux Publics, montrant les montans dépensés sur iceux, par ce département, durant l'année 1851, et le total des montans dépensés à venir au premier janvier 1852.

TRAVAUX.	Montant dépensé avant le premier janvier 1851.			Montant dépensé durant l'année 1851.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
BATISSES PUBLIQUES:—									
DÉPENSES GÉNÉRALES	10679	19	2	......	..	..	10679	19	2
A TORONTO, Maison du Parlement, hôtel du Gouvernement, Elmsly Villa	15007	10	4	1555	11	8	16563	2	0
Bureau de poste	......	..	..	1719	7	4	1719	7	4
MONTRÉAL. Palais de justice	383	2	2	10858	5	10	11241	8	0
Prison	11	15	5	652	14	7	664	10	0
Ancien hôtel du Gouvernement	......	..	..	20	15	3	20	15	3
Terres de la couronne	......	..	..	16	10	9	16	10	9
Monklands	10897	10	11	325	0	0	11222	10	11
Diverses dépenses	......	..	..	244	11	6	244	11	6
QUÉBEC...Chateau St. Louis	......	..	..	1518	18	6	1518	18	6
St. George	......	..	..	1413	1	6	1413	1	6
Maison du Parlement	......	..	..	9569	8	9	9569	8	9
Spencer Wood	......	..	..	4925	16	0	4925	16	0
Hôpital de la Marine	......	..	..	189	11	0	189	11	0
PALAIS DE JUSTICE ET PRISONS.									
Aylmer	316	12	11	1601	16	5	1918	9	4
Kamouraska	1820	8	7	394	3	5	2214	12	0
Général	6979	17	5	43	11	10	7023	9	3
ST. LAURENT....Touage	2750	0	0	1750	0	0	4500	0	0
Quais	......	..	..	271	15	3	271	15	3
EMIGRATION....Appentis	33788	5	11	205	0	0	33993	5	11
Grosse-Isle	5313	19	2	706	8	11	6020	8	1
ARBITRAGES....Diverses dépenses	18859	9	8	......	..	..	18859	9	8
INSPECTIONS....Diverses dépenses	722	12	10	1105	10	1	1828	2	11
FRAIS DE TRANSPORT..A Toronto	7341	9	6	168	16	1	7510	5	7
Do A Québec	......	..	..	8714	9	5	8714	9	5
£	114872	14	0	47971	4	1	162873	18	1

THOMAS A. BEGLY,

Secrétaire.

DÉPARTEMENT DES TRAVAUX PUBLICS,

Québec, août 1852.

No. 3.

TABLEAU des ouvrages publics qui ont été vendus ou abandonnés par le Gouvernement ; et de ceux qu'on a intention de vendre ou d'abandonner, montrant les dépenses encourues pour leur construction par le département des Travaux Publics, et les montans pour lesquels ils ont été vendus.—Aussi, le revenu pour l'année 1851.

TRAVAUX.	Montans dépensés en 1851.						Dépense totale de construction à venir au 1er janvier 1852.			Revenu, en 1851.			Montans pour lesquels les ouvrages ont été vendus.		
	Sur appropriations.			Sur droits de péage pour répar.											
CHEMINS VENDUS OU ABANDONNÉS.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Nord de Toronto				9	7	6	40854	11	5				75100	0	0
Est de Toronto							6608	0	8						
Ouest de Toronto															
Lac Rice				236	3	8	7286	11	5				4600	0	0
Hamilton et Brantford				150	14	3	9988	6	9				27100	0	0
London et Brantford	613	18	3	322	7	9	50506	16	1				6100	0	0
Hamilton et Dover	458	13	0	87	14	3	46147	11	7				7700	0	0
Dundas et Waterloo				66	2	10							26000	0	0
Kingston et Napanee				52	17	2							15400	0	0
London et Port Stanley				9	1	5	24678	3	11				4500	0	0
Chambly et Granby				940	13	2	22261	6	4	345	0	6	Nominal.		
Chambly et Longueuil				201	2	3				312	3	1	150	0	0
Queenston et Grimsby				7	11	3	11402	5	5				1000	0	0
Ouest Gwilliambury													550	0	0
Cascades							20322	2	1			Abandonné.			
London et Chatham							46708	4	7				do		
London et Port Sarnia							18640	3	5				do		
Windsor et Scugog	65	10	0				9568	14	5	Inclus dans le prix.					
Scugog et Narrows							2000	0	0	Havre de Windsor.					
HAVRES VENDUS.															
Windsor	28	15	0				29390	15	2				20100	0	0
Dover							9674	6	6				7600	0	0
Rondeau	1583	3	3				18684	8	6				2001	0	0
PONTS VENDUS.															
Chatham	517	7	0				2646	0	9	154	4	0	500	0	0
Narrows					Inclus dans le chemin										
Brantford							2827	18	4			Inclus dans les prix de leurs chemins respectifs.			
Caledonia					Inclus dans le chemin										
Delaware							do		do						
London							1481	6	8						
Rouge Hill							1367	0	0						
Humber							1003	0	0						
Belleville							1500	0	0			Abandonné.			

No. 3.—(*Continuation.*)

TRAVAUX.	Montans dépensés en 1851. Sur appropriations.			Montans dépensés en 1851. Sur droits de péage pour réparations.			Dépense totale de construction à venir au 1er janvier 1852.			Revenu en 1851.			Montans pour lesquels les ouvrages ont été vendus.		
CHEMINS QU'ON A INTENTION DE VENDRE OU ABANDONNER.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Bradford et Barrie	2649	3	4	....	..	..	14821	7	5	....	..	..	......	..	..
Bradford et Bond Head															
Bond Head et Barrie															
Barrie et Penetanguishine															
Coldwater Portage															
Amherstburg et Sandwich	......	..	..	....	..	..	962	8	2	....	..	..	......	..	..
L'Orignal et Bytown	783	0	0	....	..	..	5587	17	9	....	..	..	......	..	..
Bytown et Pembroke	144	10	3	....	..	..	144	10	3	....	..	..	......	..	..
Kingston et l'Outaouais	909	2	5	....	..	..	1084	9	1	....	..	..	......	..	..
Prescott et l'Outaouais	400	0	0	....	..	..	400	0	0	....	..	..	......	..	..
Peterboro' et Lyndsay	15	0	0	....	..	..	250	0	0	....	..	..	......	..	..
Peterboro' et Norwood	......	..	..	....	..	..	327	0	7	....	..	..	......	..	..
Cornwall et L'Orignal	......	..	..	....	..	..	895	8	7	....	..	..	......	..	..
Lancaster	......	..	..	....	..	..	2823	1[illegible]	6	....	..	..	......	..	..
Nottawasaga	703	3	9	....	..	..	995	8	11	....	..	..	......	..	..
Trent Slides à Drawbridge	......	..	..	....	..	..	......	..	..	....	..	..	......	..	..
Owen's Sound	......	..	..	....	..	..	5527	15	4	....	..	..	......	..	..
Tecumseth	......	..	..	....	..	..	1055	15	9	....	..	..	......	..	..
St. Athanase	450	18	4	390	14	7	10017	19	6	373	17	8	......	..	..
Stanstead	......	..	..	....	..	..	5782	0	6	....	..	..	......	..	..
Montagne de Sutton et Potton															
Granby à la Ligne	......	..	..	....	..	..	11177	7	3	....	..	..	......	..	..
Waterloo et Sherbrooke	......	..	..	....	..	..	480	0	0	....	..	..	......	..	..
Arthabaska	......	..	..	....	..	..	15887	12	2	....	..	..	......	..	..
Gosford	......	..	..	....	..	..	11111	2	3	....	..	..	......	..	..
Kempt	......	..	..	....	..	..	158	1	0	....	..	..	......	..	..
Craig	......	..	..	....	..	..	......	..	..	....	..	..	......	..	..
Kennebec	......	..	..	....	..		3255	10	8	....	..	..	......	..	..
Broughton et Tring	......	..	..	....	..	..	......	..	..	....	..	..	......	..	..
Temiscouata	......	..	..	71	5	6	1032	14	7	....	..	..	......	..	..
Gaspé	100	0	0	....	..	..	25803	16	5	....	..	..	......	..	..
Des Caps	1801	1	11	....	..	..	2826	9	0	....	..	..	......	..	..
Métis et Matane	......	..	..	....	..	..	1588	14	2	....	..	..	......	..	..
Rondeau	......	..	..	....	..	..	2343	19	3	....	..	..	......	..	..
Chatham et Sandwich	Inclus	da	ns	le co	ût	du	chemin	de	C	hath	a	m.	......	..	..
Maidstone, Cross et Amherstburg															
PONTS QU'ON A INTENTION DE VENDRE OU ABANDONNER.															
Shannonville	......	..	..	....	..	..	300	0	0	....	..	..	......	..	..
Winchester	......	..	..	....	..	..	300	0	0	....	..	..	......	..	..
Melbourne	20	0	0	....	..	..	5753	16	0	189	14	4	......	..	..
Jacques Cartier	101	0	0	....	..	..	4102	6	11	53	13	6	......	..	..
St. Maurice	58	10	0	....	..	..	17209	16	10	....	..	..	......	..	..

No. 3.—(*Continuation.*)

TRAVAUX.	Montans dépensées en 1851.						Dépense totale de construction à venir au 1er janvier 1852.			Revenu en 1851.			Montants pour lesquels les ouvrages ont été vendus.		
	Sur appropriations.			Sur droits de péage pour réparations.											
PONTS QU'ON A INTENTION DE VENDRE, ETC.—(*Continuation.*)	£	s	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Ste. Anne de la Pérade...........	92	6	4	....	..	..	6979	17	4	50	0	0	......	..	..
Batiscan..............	......	..	..	....	..	..	7884	4	0	30	18	9	.....	..	..
Chateauguay....................	......	..	..	....	..	..	1910	0	5	18	3	0	.... .	..	..
Nicolet.....................	1	6	6	....	..	..	4484	16	11	27	10	0	......	..	..
Godfroi.....................	......	..	..	....	..	..	1829	11	5	10	10	0	......	..	..
Bécancour....................	......	..	..	....	..	..	1870	9	3	20	5	0	......	..	..
Rivière du Chêne...............	......	..	..	....	..	..	1646	18	9	2	10	0	......	..	..
Etchemin.....................	......	..	..	....	..	..	1776	19	2	....	..	..	......	..	..
Bayoune.....................	......	..	..	....	..	..	1257	8	0	....	..	..	......	..	..
Rock Island....................	......	..	..	....	..	..	Inclus	da	ns	le ch	e-	mi	n.....	..	..
Gananoque...................	......	..	..	....	..	..	1005	2	7	....	..	..	......	..	..
Memphremagog.....	......	..	..	....	..	..	260	0	0	....	..	..	......	..	..
£	11496	9	4	2545	15	7									

THOMAS A. BEGLY,
Secrétaire

DÉPARTEMENT DES TRAVAUX PUBLICS,
Québec, août 1852.

No. 4.

TABLEAU des dépenses faites par le département des Travaux Publics, durant l'année 1851, sur les phares provinciaux servant à la navigation intérieure.

No.	PHARES.	NOM DU GARDIEN.	Salaires.			Approvisionnement, etc.			Total.		
			£	s.	d,	£	s.	d.	£	s	d.
1	Goderich	James Brady	81	5	0	152	8	10	233	13	10
2	Rivière Thames	Claude Cartier	65	0	0	86	15	7	151	15	7
3	Bois Blanc	James Hackett	87	10	0	240	19	11	328	9	11
4	Pointe Pelé	James Cummins	87	10	0	225	3	5	312	13	5
5	Port Stanley	Richard Smith	60	6	3	19	13	9	80	0	0
6	Port Burwell	J. P. Bellair	50	0	0	60	16	6	110	16	6
7	Phare flottant	Peter Baikie	135	0	0	62	10	7	197	10	7
8	Long Point, Lac Erié	Moses Newkirk	87	10	0	198	14	6	286	4	6
9	Mohawk Island	John Burgess	85	0	0	143	9	0	228	9	0
10	Baie de Burlington	John Davidson	100	0	0	135	15	7	235	15	7
11	Gibraltar Point	James Durman	85	0	0	138	18	3	223	18	3
12	Gull Island	George Roddick	109	7	6	130	2	10	239	10	4
13	Presqu'Isle	William Swetman	73	15	0	214	3	10	287	18	10
14	Point Peter	William A. Palen	85	0	0	186	15	4	271	15	4
15	False Ducks	Joseph Swetman	102	10	0	215	0	10	317	10	10
16	Nine-Mile Point	Thomas Sparham	87	10	0	131	10	10	219	0	10
17	Lancaster	Thomas Hill	52	10	0	45	13	4	98	3	4
18	Cherry Island	E. S. Johnson	85	0	0	76	17	4	161	17	4
19	Grosse Pointe, Beauharnais	Peter Shannon	85	0	0	98	7	4	183	7	4
20	McGee's Point	Alexander McDonald	35	0	0	51	6	6	86	6	6
21	Rondeau	Thomas Cronyn	65	0	0	43	9	6	108	9	6
22	Port Dover	William Fyfield	15	7	8	...	..	..	15	7	8
23	Port Maitland	C. D. Purnell	....	..	..	118	10	6	118	10	6
24	Port Dalhousie	Jonathan Woodall	....	..	..	183	7	6	183	7	6
25	Port Colborne	James Fortier	....	..	..	170	18	0	170	18	0
26	Entrée inférieure, Beauharnais	Joseph Meloche	22	10	0	81	3	6	103	13	6
27	Phare flottant, Chateauguay	Joseph Cardinal	84	14	0	86	11	1	171	5	1
28	Phare flottant et jetée à Lachine	John Norton	68	15	0	88	10	4	157	5	4
		Thomas Dissett	200	0	0	....	..	..	200	0	0
	Frais d'administration, de poste, fret, annonces, frais de voyage, etc		....	..	..	331	7	9	331	7	9
		£	2096	0	5	3719	2	3	5815	2	8
	Moins—Montant des approvisionnemens pris à Ste. Catherine		....	..	..	209	16	3	209	16	3
		£	2096	0	5	3509	6	0	5605	6	5

THOMAS A. BEGLY,

Secrétaire.

DÉPARTEMENT DES TRAVAUX PUBLICS,
Québec, août 1852.

No. 5.

TABLEAU des sommes payées pour dommages, en vertu de sentences arbitrales, en 1851 ; montrant les sommes reclamées, et les sommes accordées ; aussi, les sommes payées aux arbitres, etc., pour services et dépenses.

	Désignation de l'Ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour frais d'arbitrage.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
M. W. et E. Brown	Baie de Burlington										41	6	7
Adam Stark	Trent	48	0	0	17	15	0				17	15	0
Ira Vanvalkenburg	Chemin Holland				30	0	0				30	0	0
John Carey	Chemin Crédit	300	0	0	40	0	0				40	0	0
W. J. Fitzgerald	Trent	198	0	0	160	0	0				160	0	0
Clark Spalding	do	375	0	0	40	0	0				40	0	0
Roger Bates	do	800	0	0	360	0	0				360	0	0
James Douglass	Chemin Holland	83	10	0	18	0	0				18	0	0
R. B. Miller	do	227	10	0	97	10	0				97	10	0
Christopher Knowlton	Trent	50	0	0	20	0	0				20	0	0
Archibald McDonald	do	135	0	0	43	2	6				43	2	6
John Stewart	do				12	10	0				12	10	0
James Crooks	do	1961	3	0	600	0	0				600	0	0
David Stewart	do	200	0	0	50	0	0				50	0	0
R. C. Humphries, senior	do	100	0	0	10	0	0				10	0	0
Thomas May	Chemin Crédit	250	0	0	36	5	0				36	5	0
Charles Boyer	do Holland	369	4	0	101	0	0				101	0	0
Alexander Lane	Trent	Non spécifié.			11	5	0				11	5	0
George Shouldes	do	112	10	0	35	0	0				35	0	0
Patrick Gallivan	do	Non spécifié.			5	0	0				5	0	0
E. Sullivan	do	do	do		7	10	0				7	10	0
Catherine Flood	do	do	do		17	10	0				17	10	0
Zac. Burnham	Trent	622	10	0	20	0	0				20	0	0
Pierce, Black et Cie.	Beauharnais				1045	6	3				1045	6	3

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour frais d'arbitrage.		
		£	s.	d.	£	s.	d.	£	s,	d.	£	s.	d.
J. McCarty	Trent	Non spécifié.			11	17	6	....	....	....	11	17	6
W. et M. Ferris	do	48	15	0	25	16	9	....	....	....	25	16	9
Thomas Anderson	do	40	0	0	15	0	0	....	....	....	15	0	0
Peter Perry	Windsor et Scugog	290	16	3	49	2	0	....	....	....	49	2	0
John Gilchrist	Trent	2152	13	2	350	0	0	....	....	....	350	0	0
James Taylor	London et Chatham	413	4	6	30	0	0	....	....	....	30	0	0
Almyra Foley	Trent	40	0	0	34	0	0	....	....	....	34	0	0
Richard Burdsall	do	69	0	0	47	5	0	....	....	....	47	5	0
William Cottingham	do	660	0	0	550	0	0	....	....	....	550	0	0
Maurice Stack	do	117	5	0	37	10	0	....	....	....	37	10	0
Daniel Sullivan	Chemin York, Est	288	0	0	170	0	0	....	....	....	170	0	0
C. J. Baldwin	Trent	338	0	0	160	0	0	....	....	....	160	0	0
William Boate	do	205	0	0	32	10	0	....	....	....	32	10	0
James Boate	do	62	10	0	35	0	0	....	....	....	35	0	0
Patrick Dawson	do	....	....	....	....	....	....	....	....	....	13	2	6
Michael Lehaine	do	40	0	0	22	10	0	....	....	....	22	10	0
James Ferguson	Chemin Chatham	....	....	....	....	....	....	....	....	....	266	15	7
E. McDonell	Trent	....	....	....	....	....	....	....	....	....	20	0	0
M. McAuliffe	do	Non spécifié.			15	0	0	....	....	....	15	0	0
John Arksey	do	175	0	0	25	0	0	....	....	....	25	0	0
Francis Duffy	do	....	....	....	....	....	....	....	....	....	17	10	0
F. B. Spilsbury	do	400	0	0	166	0	0	....	....	....	166	0	0
E. Murphy	do	Non spécifié.			10	0	0	....	....	....	10	0	0
Thomas Groves	Trent	Non spécifié.			14	5	0	....	....	....	14	5	0
Sarah Hamilton	do	do	do		13	2	6	....	....	....	13	2	6
R. Robertson	do	75	0	0	25	0	0	....	....	....	25	0	0
B. Houligan	do	100	0	0	22	10	0	....	....	....	22	10	0
Samuel Tisdale	do	....	....	....	....	....	....	....	....	....	30	0	0
James Wallis	do	2416	13	4	600	0	0	....	....	....	600	0	0

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour frais d'arbitrage.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Dorothy Durrell	Granby	150	0	0	31	16	3	......	....	....	31	16	3
Edmond Longley	do	50	0	0	50	0	0	......	....	....	50	0	0
Micheal Bray	do	62	10	0	13	15	3	......	....	....	13	15	3
John Bellows	do	43	10	0	29	1	3	......	....	....	29	1	3
Joshua Rowell	do	300	0	0	230	0	0	......	....	....	230	0	0
Révérend R. A. Flanders	do	75	0	0	47	1	0	......	....	....	47	1	0
Ralph Merry	do	50	0	0	31	14	4	......	....	....	31	14	4
Harlow Miner	do	75	0	0	55	0	0	......	....	....	55	0	0
Samuel V. Mock	do	70	0	0	29	13	9	......	....	....	29	13	9
Charles d'Août	Beauharnais	......	....	....	70	12	9	......	....	....	70	12	9
Augustin Broissois	do	......	....	....	54	2	6	......	....	....	54	2	6
François Godin	do	......	....	....	107	7	6	......	....	....	107	7	6
Louis Trudel	do	......	....	....	55	18	4	......	....	....	55	18	4
J. M. Quevillon	do	......	....	....	27	0	0	......	....	....	27	0	0
Jerôme Longtin	do	......	....	....	50	1	3	......	....	....	50	1	3
Pierre Gendron	do	......	....	....	8	0	0	......	....	....	8	0	0
Louis Lemay dit Delorme	do	......	....	....	56	17	7	......	....	....	56	17	7
Ignace Longtin	do	......	....	....	10	1	3	......	....	....	10	1	3
E. Monpetit dit Potvin	do	......	....	....	38	0	0	......	....	....	38	0	0
Hyacinthe Lefebvre	do	......	....	....	41	12	6	......	....	....	41	12	6
J. B. Monpetit dit Potvin	do	......	....	....	103	9	0	......	....	....	103	9	0
Etienne D'Août	do	......	....	....	264	6	8	......	....	....	264	6	8
Regis Poirier	do	......	....	....	7	5	0	......	....	....	7	5	0
Antoine Boyer	do	......	....	....	38	15	0	......	....	....	38	15	0
Alexander McPherson	do	......	....	....	33	15	0	......	....	....	33	15	0
James McPherson	do	......	....	....	4	8	0	......	....	....	4	8	0
Pierre Michel Leduc	do	......	....	....	59	8	0	......	....	....	59	8	0
Joachim Brossois	do	......	....	....	149	16	3	......	....	....	149	16	3
Joseph Marvois et Augustin Burrett	do	......	....	....	16	7	6	......	....	....	16	7	6

No. 5.—(*Continuation.*)

7

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour arbitrages.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Antoine Daigneau	Beauharnais				54	17	6				54	17	6
Hyacinthe Brossois	do				2	10	0				2	10	0
Antoine St. Onge	do				3	11	3				3	11	3
Hyacinthe Lefèbvre	do				46	13	0				46	13	0
Raphael Galarneau	do				16	5	6				16	5	6
Amable Poirier	do				7	8	6				7	8	6
Joseph Boyer dit Peltier	do				11	0	0				11	0	0
Thomas Leduc	do				11	13	11				11	13	11
Antoine Leduc dit Peron	do				11	2	7½				11	2	7½
Stephen May	do				43	5	0				43	5	0
Mad. O'Hara	do				42	17	6				42	17	6
François Faubère dit Maçon	do				15	13	6				15	13	6
Jean Baptiste Rapin	do				9	5	0				9	5	0
Martin Fortier	do				19	3	8				19	3	8
Olivier Bonin	do				8	7	6				8	7	6
François Poirier	do				25	19	0				25	19	0
François D'Août	do				25	1	9				25	1	9
Joseph Lefèbvre	do				4	11	9				4	11	9
Michel Lebœuf	do				2	6	10½				2	6	10½
Noël St. Michel	do				14	11	0				14	11	0
Antoine Thomas Leduc (Père)	do				13	15	0				13	15	0
Pierre Leduc (Père)	do				12	16	3				12	16	3
Hyacinthe Leduc	do				16	16	3				16	16	3
Jean Baptiste Lavoix	do				42	10	0				42	10	0
Messire Jean Bourrassa	do				50	7	6				50	7	6
Messire J. O. Archambault	do				34	17	6				34	17	6
Marg Champeau, veuve de Pierre Contreau	do				12	0	0				12	0	0
Christophe D'Août	do				68	6	3				68	6	3
Pierre Soigne	do				47	0	0				47	0	0

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour arbitrages.		
		£	s.	d.	£	s.	d.	£	s.	s.	£	s.	d.
Bazile Leduc	Beauharnais				5	0	0				5	0	0
François Lebœuf, fils de Bazile	do				43	9	0				43	9	0
Guillaume Lalonde	do				43	11	8				43	11	8
Veuve Louis Julien	do				54	17	6				54	17	6
Louis René Leduc	do				11	4	9				11	4	9
Joseph T. Outier	do				26	18	9				26	18	9
Joseph et Joachim Sauvé	do				7	6	0				7	6	0
Antoine Poirier	do				23	10	0				23	10	0
Joachim Brossois	do				79	2	6				79	2	6
François Bergevin	do				16	7	6				16	7	6
Louis d'Août	do				38	1	3				38	1	3
Pierre Leduc	do				20	13	9				20	13	9
François Bergevin	do				39	2	6				39	2	6
Joseph Boyer	do				13	5	0				13	5	0
Joseph Lalonde	do				13	8	6				13	8	6
Michel Beautron dit Major	do				1	17	6				1	17	6
André Beautron dit Major	do				1	12	6				1	12	6
Michel Léger	do				19	8	10				19	8	10
Charles Lebœuf	do				38	8	9				38	8	9
Jean Baptiste Deschamps	do				31	6	3				31	6	3
Xavier Meloche	do				17	18	0				17	18	0
Joseph Bergevin, fils de Pierre	do				34	17	6				34	17	6
Joachim Lefèvre	do				5	0	0				5	0	0
Fierre Bergevin	do				32	15	0				32	15	0
Jean Baptiste Lebœuf	do				27	11	3				27	11	3
Eustache Bergevin	do				29	15	0				29	15	0
Louis Bergevin	do				6	10	0				6	10	0
François Julien	do				7	7	6				7	7	6
Joseph Janvri dit Bélair	do				31	2	6				31	2	6

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour abitrages.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Tous. Dandurand dit Marchativre	Beauharnais				4	17	6				4	17	6
Augustin Miron	do				32	0	0				32	0	0
Pierre Poirrier	do				23	16	6				23	16	6
Pierre Bougi, et Jean Baptiste Hogue	do				4	10	0				4	10	0
Noël Emond	do				20	2	6				20	2	6
Thami. Galerneault	do				2	2	6				2	2	6
François Roi	do				22	8	6				22	8	6
Paul et François Trottier	do				25	0	0				25	0	0
Louis baulieau	do				1	5	0				1	5	0
Angustin Mailloux	do				7	11	0				7	11	0
Silvain d'Arpentigny	do				9	19	0				9	19	0
Albert Mercier	do				29	18	9				29	18	9
Amable Brunette	do				19	3	0				19	3	0
Gabriel Urtribise	do				14	7	2				14	7	2
Alexis Jean Veau	do				85	12	3				85	12	3
François Lebœuf	do				10	1	10½				10	1	10½
André Brunette	do				6	15	0				6	15	0
Pierre Marcotte	do				6	12	6				6	12	6
Louis Julien	do				6	0	0				6	0	0
Amable Bourdon	do				37	10	0				37	10	0
Pierre Lebœuf	do				16	2	6				16	2	6
Antoine Lebœuf	do				20	2	6				20	2	6
Augustine Lefèbvre	do				48	3	6				48	3	6
Antoine Mathieu	do				19	0	0				19	0	0
Joseph Ladéroutte	do				22	0	0				22	0	0
François Méloche	do				21	5	0				21	5	0
Pierre Boyer	do				1	11	3				1	11	3
François Pitre	do				3	15	0				3	15	0
Joseph St. Michel	do				24	4	2				24	4	2

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé à même les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour arbitrages.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Pierre Lemieux	Beauharnais				189	8	6				189	8	6
Paul Vieau fermier de P. Lemieux	do				3	4	4½				3	4	4½
Pierre Leduc	do				14	6	8				14	6	8
Ignace Tessier	do				5	17	6				5	17	6
Félix Grenier	do				24	4	9				24	4	9
Laurent Fortier	do				17	5	0				17	5	0
Louis Bergevin	do				11	18	6				11	18	6
Antoine Hénault, fils de Joseph	do				17	16	0				17	16	0
Etienne Hénault, fils de Joseph	do				34	5	0				34	5	0
Etienne Hénault, fils d'Etienne	do				167	16	3				167	16	3
Nicolas Gagner	do				3	15	0				3	15	0
Julien Sauvé	do				9	2	6				9	2	6
Pierre St. Michel	do				49	19	6				49	19	6
J.-Bte. Benoit, fermier de Hyacinthe Leduc	do				11	17	6				11	17	6
Antoine Hénault, fils d'Antoine	do				8	10	0				8	10	0
Charles Larocque	do				11	5	0				11	5	0
Michel Beautron, fils	do				53	0	0				53	0	0
Jacques Hébert	do				7	0	0				7	0	0
Xavier Rapin	do				16	2	6				16	2	6
Pierre Leduc, fils de Pierre	do				21	7	6				21	7	6
Xavier Sauvé	do				8	12	6				8	12	6
Jean Baptiste Filiatreau	do				3	18	9				3	18	9
Paschal Boyer	do				2	17	6				2	17	6
Pierre Faubert	do				4	1	3				4	1	3
Joseph Rivet	do				1	12	6				1	12	6
Eustache Lefebvre	do				1	5	0				1	5	0
Ambroise Pitre	do				5	0	0				5	0	0
Joseph Myer	do				10	7	6				10	7	6
Veuve Etienne Lefebvre	do				8	2	6				8	2	6

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour arbitrages.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Félix Vinette	Beauharnais				18	0	0				18	0	0
Venant Lefèbvre	do				26	12	6				26	12	6
Joseph Bergevin	do				70	5	0				70	5	0
François Mercier	do				8	7	6				8	7	6
François Tessier	do				58	5	0				58	5	0
Etienne Payment	do				26	5	0				26	5	0
Michel Tessier (dit Lavigne)	do				15	13	6				15	13	6
Feu Amable Bourdon	do				17	2	6				17	2	6
Antoine Lebœuf	do				5	0	0				5	0	0
Louis Augé	do				1	5	0				1	5	0
Raphael Payment dit Larivière	do				72	12	6				72	12	6
Joseph Latour	do				1	6	3				1	6	3
Louis Leduc	do				6	2	6				6	2	6
Louis Decoigne	do				11	13	9				11	13	9
Augustin Poirier	do				2	17	6				2	17	6
François Charbonnault	do				5	5	6				5	5	6
Antoine Poirier dit Lafleur	do				4	5	0				4	5	0
Honoré Laurin	do				24	0	0				24	0	0
J. H. McAlpine	Trent				7	10	0				7	10	0
D. Hourrain	do				20	0	0				20	0	0
Hewitt et Schram	Main North, Toronto	2194	2	3½	375	0	0				375	0	0
Etat de Barwick	Trent	150	0	0	15	0	0				15	0	0
Benjamin Draper	Canal de Lachine										477	14	9
John Geary	Brantford et Rouge Hill	2744	15	6	700	0	0				700	0	0
James Morrison	Main North, Toronto	2877	15	6	487	10	0				487	10	0
James Russell	Baie de Burlington	12515	0	0	5011	10	0	2000	0	0	2111	10	0
R. Hourd	Trent				90	0	0				90	0	0
T. Maig	do				48	10	0				48	10	0
Mad. Mathews	Bassin de Rondeau	4794	3	6	1583	3	3	1583	3	3			

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour arbitrages.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Charles B. Hewitt	Pont de Chatham	....	....	....	440	0	0	440	0	0	....	....	....
McKennon et McKerracher	Chemin de Dover	1000	0	0	458	13	0	458	13	0	....	....	....
Garner Ellwood	Chemin de Brantford	1855	8	6	558	4	6	558	4	6	....	....	....
Hunter et Dane	do do	269	12	0	37	12	0	37	12	0	....	....	....
E. C. Campbell	Canal Welland	....	....	....	48	6	3	48	6	3	....	....	....
John Ker	do do	....	....	....	12	10	0	12	10	0	....	....	....
John Young et autres	do do	....	....	....	151	9	8	151	9	8	....	....	....
Thomas Adams	do do	....	....	....	80	0	0	80	0	0	....	....	....
Elizabeth Cole	do do	....	....	....	6	5	0	6	5	0	....	....	....
Sarah Dunlop	do do	....	....	....	8	15	0	8	15	0	....	....	....
A. H. Boomer	do do	....	....	....	10	0	0	10	0	0	....	....	....
Christian Helet	do do	....	....	....	5	0	0	5	0	0	....	....	....
Peter Weaver	do do	....	....	....	27	1	0	27	1	0	....	....	....
George Rother	do do	....	....	....	6	5	0	6	5	0	....	....	....
John Thompson	do do	....	....	....	10	0	0	10	0	0	....	....	....
Samuel Neice	do do	....	....	....	24	7	6	24	7	6	....	....	....
John Steele	do do	....	....	....	35	0	0	35	0	0	....	....	....
John Keefer	do do	....	....	....	25	0	0	25	0	0	....	....	....
John Duffill	do do	....	....	....	42	14	8	42	14	8	....	....	....
John Kelly	do do	....	....	....	12	10	0	12	10	0	....	....	....
John et Margret Price	do do	....	....	....	113	0	9	113	0	9	....	....	....
Mathew Hutson	do do	....	....	....	25	0	0	25	0	0	....	....	....
David P. Brown	do do	....	....	....	33	13	8	33	13	8	....	....	....
Thomas C. Street	do do	....	....	....	63	8	0	63	8	0	....	....	....
Jacob Dittrick	do do	....	....	....	29	13	9	29	13	9	....	....	....
P. H. Bull	do do	....	....	....	27	14	8	27	14	8	....	....	....
William Thompson	do do	....	....	....	67	15	0	67	15	0	....	....	....
Alva Dittrick	do do	....	....	....	100	0	0	100	0	0	....	....	....
Alpheus Jones	do do	....	....	....	35	12	6	35	12	6	....	....	....

No. 5.—(*Continuation.*)

	Désignation de l'ouvrage.	Montant de la réclamation.			Montant adjugé par les arbitres.			Montant payé sur les appropriations pour tels ouvrages.			Montant payé à même les appropriations pour arbitrages.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Obadiah Hopkins	Canal Welland				40	0	0	40	0	0			
Richard Ash	do do				14	18	6	14	18	6			
Joseph Goodman	do do				17	6	10	17	6	10			
John Bradley	do do				8	18	0	8	18	0			
W. et J. Burr	do do				22	0	0	22	0	0			
Orson Phelps	do do				92	13	0	92	13	0			
T. B. Wragg	do do				20	12	6	20	12	6			
Lewis Traver	do do				14	16	10	14	16	10			
James Madigan	do do				3	18	0	3	18	0			
P. Marron	do do				4	13	9	4	13	9			
J. S. McDonald	do do				17	13	0	17	13	0			
J. et E. Jackson	do do				60	0	0	60	0	0			
James Curly	do do				5	0	0	5	0	0			
Godfrey Wand	do do				40	0	0	40	0	0			
Jacob Ward	do do				5	0	0	5	0	0			
Etat de G. Bradner	do do				10	0	0	10	0	0			
Alpheus Sherwood	do do				33	15	0	33	15	0			
George Keefer	do do				75	0	0	75	0	0			
M. Silverthorn	do do				15	0	0	15	0	0			
H. Marslatt	do do				68	15	0	68	15	0			
B. F. Reynolds	do do				21	11	3	21	11	3			
C. L. Hughes	do do				40	0	0	40	0	0			
Jacob Griffith	do do				55	10	0	55	10	0			
Brown et McDonell	do do				2480	7	6	2480	7	6			
Asa D. Wood et Cie	do do				1069	16	10	1069	16	10			
William Cook et Cie	do do				2475	0	0	2475	0	0			
Francis Hall	Inland Waters, dist. de Newcastle, etc.										100	0	0
							*£	12791	1	2	14816	13	2

* La somme de £12,791 1s. 2d. est comprise dans le tableau No. 1, ayant été payée sur la somme appropriée pour les ouvrages.

No. 5.—(*Continuation.*)

PAYÉ AUX ARBITRES, ETC.							Montant payé à même les appropriations pour arbitrages.		
	£	s.	d.	£	s.	d.	£	's.	d.
William Hutton, 128 jours, à 28s	128	0	0						
Dépenses de voyage, 128 jours, à 10s	64	0	0	192	0	0			
William Woodruff, 118 jours, à 20s	118	0	0						
Dépenses de voyage, 118 jours, à 10s	59	0	0	177	0	0			
C. W. Lount, 74 jours, à 20s	74	0	0						
Dépenses de voyage, 74 jours, à 10s	37	0	0	111	0	0			
Joshua Bates, 17 jours, à 20s	17	0	0						
Dépenses de voyage, 17 jours, à 10s	8	10	0	25	10	0			
Francis Hall, (secrétaire) 164 jours, à 15s	123	0	0						
Papeterie, etc	6	6	1	129	6	1			
Paul Timothé Masson, 39 jours, à 20s	39	0	0						
Dépenses de voyage, 54 jours, à 10s	27	0	0	66	0	0			
James Somerville, 45 jours, à 20s	45	0	0						
Dépenses de voyage, 50 jours, à 10s	25	0	0	70	0	0			
Edward Quin, 45 jours, à 20s	45	0	0						
Dépenses de voyage, 50 jours, à 10s	25	0	0	70	0	0			
A. G. Lajoie, (secrétaire) 79 jours, à 15s	59	5	0						
Dépenses de voyage, etc	17	18	6	77	3	6			
Dépense de voyages et dépenses contingentes des arbitres du Haut-Canada				58	1	4			
							976	0	11
Dépenses légales, témoins, frais de poste, frais de régie, etc							1419	0	2
						£	17211	14	3

Département des Travaux Publics,
Québec, août 1852.

THOMAS A. BEGLY,
Secrétaire.

No. 6.

TABLEAU montrant le montant total dépensé par le département des Travaux Publics, durant l'année 1851, tel que détaillé dans les tableaux 1, 2, 3, 4 et 5 précédens.

	Réparations et entretien.			Construction.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
Montant du tableau No. 1………………	28292	5	2	88185	9	3	116477	14	5
do do 2………………	……	……	……	47971	4	1	47971	4	1
do do 3………………	2545	15	7	11496	9	4	14042	4	11
do do 4………………	5605	6	5	……	……	……	5605	6	5
do do 5………………	……	……	……	17211	14	3	17211	14	3
£	36443	7	2	164864	16	11	201308	4	1
Montant reçu de l'hon. Receveur-général durant l'année 1851, par warrans émanés sur certificats des commissaires des Travaux Publics …………	……	……	……	……	……	……	202049	2	3
						*£	740	18	2

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* Les pièces justificatives de ce montant sont entre les mains des paye-maîtres, et n'avaient pas été reçues au 1er janvier, quand les comptes furent réglés.

THOMAS A. BEGLY,
Secrétaire.

Département des Travaux Publics,
Québec, août 1852.

No. 7.

TABLEAU des pouvoirs d'eau, etc., loués sur les différents canaux provinciaux, avec les noms des locataires, la désignation de la machine, etc., et le montant des rentes annuelles.

CANAUX.	LOCATAIRES.	DÉSIGNATION DE LA MACHINE, ETC.	Nombre de			Montant des rentes annuelles.		
			Moulanges.	Scies.				
				Communes.	Rondes.	£	s.	d.
WELLAND	Robert Laurie et Cie	Moulins à cardes et à farine	3			49	6	6
	Reuben Morrison	Moulin à scies		1	2	34	5	0
	J. L. Ranney	do à farine	6			65	0	0
	Compagnie du pouvoir d'eau	Divers moulins				125	0	0
	Calvin Phelps	Moulin à farine	6			37	10	0
	Richard Collier	do à scies et autres		1		41	18	4
	Thomas Towers	do à carder	3			35	0	0
	William B. Hendershot	do à scies et autres	1			38	0	0
	William Beatty	do à scies		1		27	0	0
	do	Tannerie				15	18	0
	William H. Ward	Machine à tourner, à planer et à scier			3	12	10	0
	do	A scie		3		36	10	0
	Jacob Keefer	A farine	4			55	10	0
	Brown et Ross	do	3			45	0	0
	Park et Cie	do	3			40	0	0
	Alexander Christie	do	3			40	0	0
	John Brown	Plâtre	1			15	0	0
	Wright et Duncan	A farine et à cardes	3			67	13	4
	William H. Merritt	A scies et autres		1		36	15	6
	Alexander Bowman	Fabrique de pelles				16	10	0
	William Pennock	do de bardeaux				16	10	0
	Tucker et Ranney	Moulin à carder et à scier				250	0	0
	Lemon et McPherland	A scies et autres		1	1	37	10	0
	Abbey et McFarland	Dry Dock				19	16	0

No. 7.—(*Continuation.*)

CANAUX.	LOCATAIRES.	DÉSIGNATION DE LA MACHINE, ETC.	Nombre de			Montant des rentes annuelles.		
			Moulanges.	Scies.				
				Communes.	Rondes.	£	s.	d.
WELLAND.—(*Continuation.*)	Donaldson et McFarland	A carder	1			21	10	0
	Robert Band et Cie.	A cardes et à farine	3			46	10	0
	Dunlop et Seeley	A carder et autre	3			54	0	0
	do	A scies		3	4	53	10	0
	do	do		1	3	39	0	0
	Mosses Cook	A cardes et à farine	3			48	0	0
	John Greybeil	do et à scies	2	1		40	0	0
	Hezekiah Davis	do do	1	2		36	13	4
	Samuel Darling	A cardes	2			21	13	4
	L. J. Weatherby	A carder, filer, tisser, fouler, etc.				13	6	8
	H. Mittleberger	A scies		1		16	13	4
	Chisholm et Winer	do		2	3	34	13	4
	Hugh Boomer	A cardes et à farine	3			30	0	0
	John Brown	A moudre le plâtre	1			20	0	0
	John Oldfield et Cie.	A scies		2	1	29	6	8
	C. Johnson	do		1		16	13	4
	L. Brocklebank	A cardes et à farine	3			38	6	8
	Beatty et Band	A cardes	2			32	10	0
	Imlack et Hicks	do	2			34	10	0
	William Melamby	A scies		1	1	30	10	0
	Orson Phelps	do		1	1	30	10	0
WILLIAMSBURG	Benjamin Chaffey	Moulin à cardes et à farine	6			61	10	0
	William Elliot	do do				35	0	0
	J. S. Ross	Quai				12	10	0
	J. Slorah	do				12	10	0
	William McLaughlin	do				3	0	0
	John Walsh	do				11	0	0

No. 7.—(*Continuation.*)

CANAUX.	LOCATAIRES.	DÉSIGNATION DE LA MACHINE, ETC.	Nombre de Moulanges.	Nombre de Scies. Communes.	Nombre de Scies. Rondes.	Montant des rentes annuelles. £	s.	d.
WILLIAMSBURG.—(*Continuation.*)	Nelson Empey	Quai				3	0	0
	James Holden	do				10	0	0
	R. McPherson	do				3	0	0
CORNWALL	Andrew Elliott	Moulin à cardes et à farine	8			60	0	0
	John Harvie	do do	4			30	0	0
	A. E. Cadwell	Moulin à scies		1		30	0	0
	John Bell	Tuyaux pour brasseries				2	10	0
BEAUHARNAIS	D. B. Pease	Quai				5	0	0
	Owen Lynch	do				5	0	0
	Léon Leduc	do				5	0	0
	Louis Bergevin	do				2	10	0
	Owen Lynch	do				5	0	0
LACHINE	E. E. Gilbert	Fonderie, etc				322	10	0
	James Hervey	Magasin				135	0	0
	Thomas Peck	Clous et fiches				135	0	0
	James McDougall	A farine	4			107	10	0
	Thorne et Heward	Magasin				216	0	0
	Ira Gould	A farine				108	0	0
	T. D. Bigelow	Clous et fiches				107	10	0
	John M. Holland	do do				107	10	0
	William Lyman et Cie	Huile et plâtre				107	10	0
	Grant et Hall	Machine à planer, etc				215	0	0
	George et William Tate	Dry Dock				250	0	0
	Augustus L'Abbé	Petit bassin				25	0	0
	Young et Gould	Diverses				420	0	0
	N. Doré	Quai				8	0	0
					£	4406	19	4

No. 8.

TABLEAU des canaux et écluses du Canada, montrant où ils sont situés, la longueur et la largeur des canaux, et le nombre d'écluses, avec leurs dimensions, le montant de l'éclusage, etc.

NOM ET DÉSIGNATION DE L'OUVRAGE.	Longueur du canal, en milles.	Dimensions des canaux, en pieds.			Montant de l'éclusage en pieds.	Nombre d'écluses.	Dimensions des écluses, en pieds.			Dimensions des vaisseaux qui peuvent passer les écluses, en pieds.		
		Largeur au point culminant.	Largeur au fonds.	Profondeur.			Longueur entre les portes.	Largeur.	Profondeur de la chaussée.	Longueur entière.	Largeur.	Tirant d'eau.
Le Canal Welland, liant la Grande Rivière et le lac Erié au lac Ontario—												
Le *Feeder*, depuis Dunnville, sur la Grande-Rivière, jusqu'à la jonction avec le tronc principal	21	71	35	8½	......	......	......	......	......	......	......	......
L'embranchement de Broad-Creek, depuis Port Maitland, sur l'Erié jusqu'au *Feeder*	1½	85	45	10	8	1	185	45	9	170	44	9
Tronc principal, depuis le Port Colborne, sur le lac Erié, jusqu'au Port Dalhousie, sur l'Ontario	28	71	35	10	346	24 3	150 200	26½ 45	9½ 9½	142 185	26¼ 44	9½ 9½
Note.—Lorsque le niveau du lac Erié aura été obtenu sur la ligne du tronc principal, le nombre des écluses sera réduit à 26, et l'éclusage à 330 pieds.												
Les Canaux du St. Laurent, liant le lac Ontario au fleuve St. Laurent à Montréal, à la tête de la navigation océanique.												
Canaux de Williamsburg	9¾	90	50	10	29½	3	200	45	9	185	44	9
Canal de Cornwall	11½	150	100	10	48	7	200	55	9	185	53	9
Canal de Beauharnais	11¼	120	80	10	82½	9	200	45	9	185	44	9
Canal de Lachine	8	120	80	10	44¾	3 2	200 200	45 45	9 16	185 185	44 44	9 16
	68½	......	......	......	550¾	54						

No. 8.—(*Continuation.*)

NOM ET DÉSIGNATION DE L'OUVRAGE.	Longueur du canal, en milles.	Dimensions des canaux, en pieds.			Montant de l'écluse, en pieds.	Nombre d'écluses.	Dimensions des écluses, en pieds.			Dimensions des vaisseaux qui peuvent passer les écluses, en pieds.		
		Largeur au point culminant.	Largeur au fonds.	Profondeur.			Longueur entre les portes.	Largeur.	Profondeur de la chaussée.	Longueur entière.	Largeur.	Tirant d'eau.
Canaux du St. Laurent.—(*Continuation.*) Les canaux ci-dessus mentionnés complètent une navigation intérieure non-interrompue jusqu'à Chicago, sur le lac Michigan, 359½ au-dessus du niveau de la mer, distance de 1,587 milles de Québec.												
Ces canaux contrastent avec le canal Erié, liant le lac Erié, à Buffalo, à la rivière Hudson, à Albany	363	40	28	.....	668	84	90	15	4	Non au-dessus de 75 ton. de charge.		
Ecluse et Chaussée de Ste. Anne, pour éviter les rapides de Ste. Anne, sur l'Outaouais	.....	.....	.....	.....	3½	1	190	45	6	175	44	6
Canal de Chambly et Ecluse de St. Ours, liant le lac Champlain, à St. Jean, avec le St. Laurent à Sorel, savoir :—												
Canal de Chambly	11½	60	36	8	74	9	120	24	7	110	27	7
Ecluse de St. Ours	.....	.....	.....	.....	5	1	200	45	7	185	44	7
Baie de Burlington	½	*180 †103	.....	12	.....	Point.	.....	.....	.....	.....	.....	10
Ecluses des Districts de Newcastle et Colborne, savoir :												
Rapide de Scugog, Rivière Scugog	.....	.....	.....	.....	8	1	131½	32½	4½	119	31½	4½
do de Whitlas, do Otanabee	.....	.....	.....	.....	6½	1	133	32½	4	120	31½	4
do de Crooks, do Trent	.....	.....	.....	.....	6¾	1	131	32½	5½	120	31½	5½
do de Chisholm, do do	.....	.....	.....	.....	11	1	133	32½	4¼	120	31½	4¼

* Entrée extérieure

† Terminus intérieur.

No. 9.

TABLEAU montrant la balance des appropriations antérieure non encore depensée sur chacun des ouvrages suivans, au 1er janvier 1852, et les sommes qui seront requises ultérieurement pour completer les travaux, et faire profiter les sommes déjà dépensées.

TRAVAUX.	Balance non dépensée, janvier 1852.			Montant à voter.			REMARQUES.
	£	s.	d.	£	s.	d.	
Canal Welland	29360	4	1	*33046	0	0	Sur ce montant, la somme de £17,150 sera requise en 1852, et £15,896 en 1853.
Canaux du St. Laurent, savoir:—							
Lachine, pour travaux				10800	0	0	Sur ce montant, la somme de £30,000 sera requise en 1852, et £9,600 en 1853.
Do pour terres—la plus grande partie de ce montant est pour payer des hypothèques qu'ont les messieurs du séminaire de Montréal, pour terreins achetés pour le canal, entre les années 1826 et 1845	31464	1	6	15227	18	6	
Do pour terrein maintenant requis				10000	0	0	
Beauharnais				1800	0	0	
Cornwall				2000	0	0	
Travaux de l'Outaouais	5331	13	0	2530	0	0	Sur ce montant, la somme de £1,500 sera requise en 1852, et £1,030 en 1853.
Inspection des rapides du St. Laurent, etc	587	16	3	7000	0	0	
Edifices du Parlement, etc., Québec	1173	4	10	16000	0	0	
Altérations, etc., Spencer Wood	374	9	0	10500	0	0	
Acquisition de Spencer Wood	8000	0	0	2000	0	0	
Dépense du transport à Québec				2500	0	0	
Prison de Montréal	1951	1	8	2500	0	0	

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* Dans cette somme est inclue celle de £9,000 pour remplacer ce montant pris sur les appropriations antérieures pour les ouvrages, pour payer des sentences arbitrales aux contracteurs, et des dommages causés aux terres.

No. 10.

TABLEAU du coût probable des nouveaux ouvrages provinciaux en contemplation.

	£	s.	d.
Canal du Sault Ste. Marie, pour unir le lac Supérieur aux lacs Huron et Erié—les écluses adaptées à la première classe de gros steamboats voyageant maintenant sur ces lacs	120000	0	0
Amélioration des rapides du St. Laurent, pour le passage en descendant des vaisseaux tirant 10 pieds d'eau	30000	0	0
Havres	16000	0	0
Eaux de la rivière Trent et de l'intérieur	4250	0	0
Phares	17500	0	0
£	187750	0	0

Extrait des tableaux précédens, montrant la proportion des susdites sommes qui seront requises dans chacune des années 1852, 1853 et 1854.

	A être dépensé en 1852.			A être dépensé en 1853.			A être dépensé en 1854.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s	d.
Canal du Sault Ste. Marie	10000	0	0	70000	0	0	40000	0	0	120000	0	0
Améliorations des rapides du St. Laurent	10000	0	0	20000	0	0	......	..	..	30000	0	0
Havres	4000	0	0	12000	0	0	......	..	..	16000	0	0
Travaux sur la rivière Trent	2000	0	0	2250	0	0	......	..	..	4250	0	0
Phares	2000	0	0	10000	0	0	5500	0	0	17500	0	0
£	28000	0	0	114250	0	0	45500	0	0	187750	0	0

No. 11.

TABLEAU COMPARATIF du nombre de tonneaux qui ont monté les canaux du St. Laurent, jusqu'au 31 juillet 1851, et 1852.

	1851.	1852.
Nombre de vaisseaux	1055	1047
Do de tonnage	72102	68198
Nombre de Steamers	390	462
Do de tonnage	33109	46892
Passagers	8058	12733
Tonneaux transportés en articles de toutes sortes	38564	30390
Nombre de jours de navigation	99	89

ALFRED GOUGH,
Collecteur.

TABLEAU COMPARATIF du tonnage qui a descendu les canaux du St. Laurent, jusqu'au 31 juillet 1851 et 1852.

	1851.	1852.
Nombre de vaisseaux	974	929
Tonnage de do	71464	65102
Nombre de steamers	397	445
Tonnage de do	34634	46705
Passagers	3424	6808
Tonneaux transportés en articles de toutes sortes	110605½	105149
Nombre de jours de navigation	99	89

ALFRED GOUGH,
Collecteur.

CANAL DU SAULT STE. MARIE.

QUÉBEC, 19 août 1852.

MONSIEUR,

Conformément à vos instructions du 11 mai dernier, relativement à l'inspection du canal projeté au Sault Ste. Marie, j'ai l'honneur de faire rapport qu'aussitôt que je me fus acquitté des autres devoirs que vous m'aviez assignés, je me rendis pour commencer les examens et inspections nécessaires.

L'inspection nécessaire pour déterminer le site du canal fut commencée immédiatement après mon arrivée au Sault le 15 ultimo, et tandis que mon assistant M. T. S. Rubidge, l'exécutait en vertu d'autres instructions, je montai et descendis la rivière pour constater son caractère et sa capacité, et pour voir si d'autres améliorations, en outre du canal, seraient requises pour compléter la navigation entre le lac Huron et le lac Supérieur. Mes examens personnels furent complétés le 21 ultimo, après quoi je revins ici, ayant préalablement fixé le site du canal, et donné à M. Rubidge des instructions pour le marquer ou tracer sur le terrein, et pour prendre à l'une et l'autre entrée du canal et à la batture du lac George, les sondages qui paraîtraient nécessaires, après une pleine appréciation de l'importance des améliorations proposées.

L'inspection n'est donc pas encore terminée, mais dans le cours d'une autre semaine, je m'attends à recevoir de M. Rubidge un plan du site avec tous les sondages faits au Sault; et afin que vous puissiez, en attendant, avoir des renseignemens suffisans pour faire rapport sur la possibilité ou la practicabilité du canal proposé, son coût probable et ses avantages, je vais soumettre, dans un rapport succinct, le résultat général de mes examens et de mes investigations, les conclusions auxquelles j'en suis venu, et une estimation bâsée sur les notes et mesurages que j'ai pris moi-même. Ce rapport est accompagné d'un plan de la rivière Ste. Marie, compilé des cartes du capitaine Bayfield, montrant la situation et l'étendue des améliorations projetées, la ligne frontière entre le Canada et les Etats-Unis, et le cours du chenal navigable depuis le lac Supérieur jusqu'au lac Huron, et la Baie Georgienne (*Georgian Bay*).

Comme il est évidemment de la plus grande importance, pour décider sur quelle échelle on entreprendra l'amélioration proposée, de se former d'abord une idée correcte de la rivière, de sa capacité, ses courans, son flux et reflux, j'ai joint à ce rapport un extrait des notes prises pendant que je fesais ces examens, et auxquelles j'invite votre attention. Au moyen de ces notes et de la carte que je mets devant vous, vous ne pouvez manquer d'observer combien il serait simple et facile de faire disparaître tous les obstacles et ouvrir une communication avec le lac Supérieur.

Depuis le Gros Cap, où on peut dire que la rivière a son point de départ du lac Supérieur, jusqu'à la tête de l'Ile St. Joseph, où le chenal du nord ou chenal canadien, se rendant dans la Baie Georgienne (*Georgian Bay*), laisse celui qui va au lac de la Boue (*Mud Lake*) lié au lac Huron, la distance est de 40 milles.

Le principal chenal navigable, est généralement profond et vaste, et ne présente que deux places où la navigation est arrêtée ou est sérieusement obstruée par des obstacles naturels. La première est le Sault Ste. Marie, et la seconde, la batture dans le lac George. Le premier obstacle arrête le passage des vaisseaux entièrement—le second n'obstrue point la navigation, d'après ce que j'ai trouvé, lorsque les eaux sont hautes ; les steamboats de première classe peuvent y passer, et de fait, y passent chaque jour ; mais lorsque l'eau deviendra très-basse, les vaisseaux ne pourront tirer que six pieds d'eau, et il faudra creuser un chenal à travers ce barrage, pour ouvrir un passage convenable, qui ne coûterait pas plus, toutefois, que la centième partie du coût du canal.

Echelle de navigation.—Dans mon opinion, le succès de l'entreprise dépendra entièrement de la dimension qu'on adoptera pour les écluses. Si elles ne sont pas assez grandes pour donner passage à la première classe de steamers qui voyagent maintenant sur les lacs, on ne peut pas s'attendre que le canal soit adapté au commerce américain d'ici à plusieurs années. Si celui qu'on construira du côté canadien laisse quelque chose à désirer, cette amélioration demandée sera effectuée par la construction d'un meilleur canal du côté opposé. Les trois quarts des affaires qui se feront alors, se feront comme sur le canal Welland, entre les ports américains ; si donc on adoptait l'échelle du canal Welland, ce commerce serait perdu. Si même on adoptait l'échelle des canaux du St. Laurent, ce serait encore insuffisant, les écluses ne pourraient admettre les vaisseaux qui ont le port et l'agilité essentiels à leur succès sur ces lacs. Ces lacs peuvent avec raison être regardés comme des mers intérieures, et sont balayés par des tempêtes qui exigent que les vaisseaux qui les naviguent soient des plus grandes dimensions et capables de faire les meilleurs vaisseaux de mer. Les battures du lac St. Clair où doivent passer ces vaisseaux, limitent nécessairement la profondeur d'eau qu'ils peuvent tirer, et en conséquence, pour voguer avec rapidité et transporter plus de fret, ils doivent être plus longs et plus larges que ne le sont les steamers adaptés à la navigation de l'Océan.

Depuis la construction des canaux du St. Laurent, les dimensions des steamboats sur les lacs d'en haut se sont beaucoup agrandies, et pour en venir là il fallait avoir des raisons solides. Leur vitesse aussi bien que leur tonnage doivent être limités en raison de la longueur de leur quille ; pour cela l'architecte naval cherche à augmenter la longueur et la largeur, afin de pouvoir appliquer plus de force. Les bateaux qui réussissent le mieux sont ceux dont le bau est de 33 sur 37 pieds de large, et 275 à 315 pieds de long. J'ai constaté les dimensions de tous les principaux bateaux voyageant maintenant sur ces eaux, avec tous les autres détails qui s'y rapportent. De ce nombre est le "*May Flower*," qui peut être regardé comme le meilleur échantillon d'architecture navale, et le type de cette classe de vaisseaux qui réussissent le mieux.

Quelques-uns sont d'opinion que comme le commerce futur du lac Supérieur sera principalement créé et supporté par les ressources minérales extraordinaires de cette région, les steamers de première classe, qui ne sont pas aussi bien adaptés à cette navigation que les steamers à hélices ou autres vaisseaux bâtis à meilleur marché, destinés plus exclusivement au fret, peuvent être entièrement perdus de vue dans la construction de ce canal. Je ne partage pas cette opinion, car, quoique pour les seules fins du transport d'articles de fret, la seconde classe de vaisseaux trouvera toujours à être employée avantageusement, et faire peut-être la plus grande partie des affaires; cependant comme les voyages d'affaires ou de plaisir qui sont actuellement considérables et s'augmenteront indubitablement à raison des facilités qu'offrira le canal, peuvent être avantageusement combinés avec le transport des articles d'approvisionnement destinés aux mines ou avec le transport des produits des mines, il est évident que si l'on ouvrait aux vaisseaux de première classe une route au lac Supérieur, ses eaux seraient bientôt couvertes d'un nombre considérable de ces vaisseaux.

On a proposé diverses lignes de chemins de fer qui partiraient de ce lac pour aller dans l'intérieur du Michigan, du Wisconsin et du Minesota, l'une desquelles est maintenant en voie de construction ; d'autres, destinées à atteindre la partie supérieure du Mississipi et le côté ouest du lac Michigan, sont actuellement sous considération, et quelques-unes de ces lignes seront probablement commencées avant que le canal soit fini. Une fois une ligne établie avec la tête de la navigation sur le Mississipi, au-dessous des chûtes de St. Antoine, une nouvelle impulsion sera donnée au commerce et aux voyages sur les lacs, et si, en construisant des écluses d'une dimension inférieure, on excluait de ce lac les gros steamers qui voyagent actuellement sur les autres lacs, le canal manquerait son but, et serait immédiatement supplanté par un autre de dimensions convenables qu'on construirait de l'autre côté de la frontière.

La nature et la perspective du trafic qui se fera sur ce lac demande donc clairement que l'amélioration soit adaptée à la classe de gros steamboats comme ceux qui voyagent maintenant entre Buffalo et Chicago, possédant en vitesse et en tonnage ce qu'il faut pour la commodité des passagers et du commerce ; pour cela, les écluses devraient, dans mon opinion, avoir une longueur de 350 pieds dans la chambre entre les portes, de 66 pieds de large, et 10 pieds de profondeur. La rivière est de sa nature adaptée à cette échelle de navigation ; elle devrait donc être adoptée. Les obstacles qu'on rencontrera sont si peu importans en comparaison de l'objet qu'on veut atteindre, et sont tellement à la portée de l'art que le trafic aurait bientôt remboursé toute la dépense qu'il faudrait encourir pour cet objet.

Il est, comme de raison, désirable qu'en ouvrant une grande ligne de communication depuis l'Océan jusqu'aux dernières extrémités de ces mers intérieures, on conserve une échelle uniforme de navigation d'un bout à l'autre, mais on en est empêché par la diversité qui existe déjà. Avant 15 ans il faudra un nouveau jeu d'écluses sur le canal Welland pour fournir aux exigences du trafic qui augmente régulièrement au taux de vingt par cent par année, et dont la future importance n'est encore comprise que d'un petit nombre de personnes. Si on ouvrait un canal entre le St. Laurent et le lac Champlain, et si une ligne effective de steamers était établie entre Québec et Liverpool, l'augmentation des affaires dans 25 ans serait telle qu'il faudrait encore de nouvelles améliorations sur cette rivière, il faudrait construire de nouvelles écluses ; aucun des canaux actuellement existans ne peut être regardé comme devant servir de modèle au court canal qui devra être construit au Sault ; les dimensions de ce dernier devraient être telles que le requiert la nature des affaires auxquelles il est plus particulièrement destiné. Un quart de siècle ne se passera pas avant que cette échelle ne devienne celle des canaux de Welland et du St. Laurent; des vaisseaux du port de 2000 tonneaux pourraient alors descendre du lac Supérieur à l'Océan, distance de 2000 milles, sans faire plus de 29 milles de canaux; aucune ligne rivale ne pourrait lutter avec une telle navigation, la compétition serait impossible, et le commerce de l'Ouest devrait y affluer; c'est cela qu'on devrait avoir en vue dans toutes les améliorations ultérieures, et en commençant maintenant on aurait plus de chance de le réaliser plus tard, lorsque les besoins du commerce le demanderont.

SITUATION DU CANAL.—Le canal a été tracé sur une ligne droite, la plus courte qu'on a pu tirer entre les parties navigables des Baies au-dessus et au-dessous des Isles, passant ainsi presqu'au milieu de la Grande-Isle qui se trouve du côté canadien. Sa longueur à travers l'île est de 50 chaînes, mais d'une extrémité des quais à l'autre, elle est de 95 chaînes. Il fut trouvé nécessaire de construire des quais à l'entrée supérieure exactement à travers la première baie, et la pointe de la batture au-dessus, afin d'éviter un détour trop brusque, et pour préserver les vaisseaux fesant cette entrée de l'influence du courant à la tête des rapides. Le terminus supérieur est maintenant dans une baie profonde et une eau calme, où sont communément placés les vaisseaux américains qui prennent leurs quartiers d'hiver au-dessus du Sault.

ECLUSES.—Il y aura deux écluses pour éviter une chûte de 17 à 19 pieds. Elles seront placées à l'extrémité inférieure, et distantes l'une de l'autre, de 660 pieds, deux fois la longueur des plus grands vaisseaux. Elles reposeront sur des fondations de roc solide.

On propose une amélioration importante sous forme de murs d'écluse, qui empêcheront les accidens auxquels sont assujettis les vaisseaux, et protégeront aussi les portes d'écluses contre les dommages occasionnés par le passage des vaisseaux. Sur une distance de 30 pieds au-dessus et au-dessous des portes supérieures de chaque écluse, les murs seront élevés quatre pieds au-dessus du reste de l'écluse, et légèrement courbés de manière à faire passer les vaisseaux sans qu'ils touchent aux portes, ou qu'ils laissent leurs poteaux de gardes passer sur les murailles,—servant au même but que les poteaux de défense placés dans les écluses des canaux de Beauharnais et de Lachine, mais d'une manière plus efficace.

LES PORTES.—Seront construites de pièces solides, semblables à celles qui ont été dernièrement introduites sur les canaux du St. Laurent, mais ne seront pas percées pour les vannes comme le sont celles-là, parce qu'en conséquence de leur grande longueur, la force combinée de toutes les pièces sera requise pour supporter la pression. L'eau y sera donc admise, et déchargée de la chambre à travers de vastes tonnelles construites dans les murs d'écluse avec une vanne suffisante pour emplir et vider l'écluse, et laisser passer les vaisseaux en quinze minutes.

LE CANAL—Sera de 140 pieds de large à la surface et 130 pieds au fonds, assez large pour laisser passer deux vaisseaux l'un contre l'autre avec facilité, n'importe en quelle partie. Le vaste bassin entre les écluses et les vannes de décharge en dedans et en dehors servent à maintenir un constant approvisionnement d'eau pour l'éclusage; et deviendront très-utiles comme moyen de fournir des pourvoirs d'eau aux manufactures qui, dans peu d'années, seront établies dans cet endroit important.

ESTIMATION—Pour un canal avec des écluses de cette dimension, est de £120,000. Si la dimension des écluses mentionnées dans mes instructions étaient adoptée, savoir, 250 pieds de long, 55 pieds de large, et 9 pieds de profondeur, il ne requerrait pas plus de 120 pieds de large, mais comme il aurait la même longueur, et que tout le reste serait le même que si on avait adopté la grande échelle suggérée plus haut, avec la différence dans la dimension et la capacité des écluses seulement, la différence dans l'estimé n'excède pas £20,000 :—

Pieds pieds pieds

L'estimé pour un canal de 120 pieds de large, avec des écluses de 250 × 55 × 9 est £100,000.

Pieds pieds pieds

L'estimé pour un canal de 140 pieds de large, avec écluses de 350 × 66 × 10 est £120,000.

REVENU PROBABLE.

Je n'ai pu obtenir les rapports du commerce, excepté celui de l'année 1851, qui est comme suit :—

En montant..

Fer, acier et fonte, y compris trois engins à vapeur, 370,000 lbs	185	Tonneaux.
Nombre de bêtes à cornes et chevaux, 370lbs	123	do
Foin	322	do
Brique, 76m	171	do
Bois, 418m	700	do
Bardeaux, 182m	18	do
Marchandises, provisions, etc., 52,847 lbs	2641	do
Total	4160	Tonneaux.

En descendant.

Cuivre (indigène)	1586	Tonneaux.		
Mine de fer	383	do		
Poisson, 3590 barrils	513	do	2482	Tonneaux.
Tonneaux tant en montant qu'en descendant,			6642	

Ce fret paie 7s. 6d. par tonneau, jusqu'au railroad du Portage au Sault, et se monte à environ £2500 par année. Outre cela environ 3000 personnes passent là durant la saison, allant visiter le lac et les mines, et en revenant.

La flotte du lac Supérieur se compose d'un steamboat, de trois steamers à hélices, de cinq goëlettes avec un tonnage collectif de 1500 tonneaux.

Une population d'environ 2500 personnes sont actuellement employées aux travaux des mines du côté sud. Quinze compagnies pour l'exploitation des mines de cuivre, ont commencé leurs opérations, et produiront cette année environ 2000 tonneaux de cuivre, qui valent, à Pittsburg, £120 le tonneau. Le coût du transport à Cleveland à partir de Eagle Harbour sur le lac Supérieur est de 30s. le tonneau, divisés comme suit :—Sur le lac Supérieur, 7s. 6d.; railroad du Portage, 7s. 6d. ; du Sault à Cleveland, 15s. ; de Eagle Harbour à New-York, le fret est de 70s. le tonneau.

Vingt-deux autres compagnies qui se sont récemment formées n'ont pas encore commencé leurs opérations.

On s'attend que deux compagnies pour l'exploitation des mines de fer du côté sud produiront environ 1000 tonneaux de fer durant cette saison, et trois ou quatre autres compagnies qui se sont formées, n'ont pas commencé leurs travaux.

Le fer du lac Supérieur surpasse en qualité le fer qu'on a trouvé jusqu'aujourd'hui dans les autres parties du monde, et il est par conséquent en grande demande pour les objets importants ; il obtient de hauts prix. Il se vend au Détroit £16 5s. le tonneau.

Sa tenacité, lorsqu'il est roulé en barres, a été constatée, par plusieurs expériences, être de 89,882 livres par pouce carrée, tandis que celle du meilleur fer russe n'est que de 79,000 livres, et celle du meilleur fer anglais 57,000 livres. Dans son état naturel, il contient 69 par cent de fer pur. A l'avenir on a intention, aussitôt que le chemin de fer sera construit, de transporter la mine, et la faire fondre dans la Pennsylvanie et ailleurs, là où le fer pourrait être vendu. Les propriétaires de la " Montagne de fer " sur la location de Jackson, espèrent pouvoir transporter vers l'Est 100,000 tonneaux de cette mine, immédiatement après l'ouverture du canal. On espère pouvoir le fabriquer en barres à l'usage des chemins de fer, moyennant £7 10s. par tonneau, et par là, créer une révolution dans le trafic du fer. La pureté de la mine, la tenacité extraordinaire du fer, et le peu de frais nécessité comparativement pour la production, auraient indubitablemont un effet favorable et serviraient à le mettre en usage dans l'Ouest, et comme les mines sont aussi inépuisables que la demande, on peut raisonnablement présumer que cet article deviendra un jour une des principales sources de revenu du canal. La même sorte de fer se trouve en abondance sur le rivage nord.

On ne peut donc baser une estimation du revenu que rapportera le canal par les travaux des mines, le commerce des pêcheries et autre commerce du lac Supérieur, sur l'augmentation qui a eu lieu depuis quelques années, sous des circonstances défavorables. Le revenu est en perspective : mais avec l'impulsion que le canal donnera aux autres branches de commerce, et l'effet qu'il aura d'avancer les établissemens des deux côtés du lac, il n'est pas déraisonnable de supposer que dans dix ans les droits de péage paieront l'intérêt du coût du canal.

Sans considérer cependant ce retour immédiat, le canal du Sault Ste. Marie devrait être regardée comme un anneau important d'une chaîne de navigation que le Canada aura ouverte entre l'Océan et les lacs d'en haut. Il ajouterait 1500 milles de côtes de lacs à celles qui sont déjà devenues tributaires des ouvrages provinciaux. Le Canada a donc un profond intérêt à ce qu'il soit construit, et s'il est complété d'une manière efficace, il n'est pas du tout probable qu'il se construise jamais un canal rival, parce qu'il sera impossible de rien faire de mieux que ce qui existera déjà.

Le tout respectueusement soumis, par
Votre obéissant serviteur,
SAMUEL KEEFER,
Ingénieur en chef des Travaux Publics.

RIVIÈRE STE. MARIE.

Notes—prises en fesant l'examen de la rivière Ste. Marie, entre le 5 et le 20 juillet 1850.

On peut considérer la rivière comme commençant au Gros Cap d'où on compte quinze milles pour aller au Sault. Le courant est léger, le chenal large et profond, et des personnes qui connaissent la navigation du lac Supérieur le regardent comme très bien adapté aux vaisseaux à voile qui ne tirent pas plus de deux toises d'eau.

Au Sault la chûte actuellement, (juillet 1852,) est de dix-sept pieds, mais l'eau du lac Huron étant plus haute qu'à l'ordinaire, et celle du lac Supérieur, à peu près à son niveau ordinaire, la chûte est moins forte qu'on ne l'avait observé jusqu'ici. Au niveau ordinaire de l'eau elle serait de dix-huit pieds, tandis qu'aux eaux basses elle est de dix-neuf pieds, variant ainsi de dix-sept à dix-neuf pieds suivant l'état de la rivière. Le roc qui se trouve au-dessous des rapides et le sol des Iles qui barrent la rivière, sont de formation primitive de grès semblable au terrein qui se trouve à l'entrée inférieure du canal de Beauharnais, mais offrant des couches plus régulières, légèrement inclinées contre le courant ; cette substance est uniforme à la surface et peut être travaillée facilement, et elle est si solide qu'elle peut faire de bonnes fondations pour les écluses. La longueur de la descente est d'environ un demi mille et la largeur de même. L'endroit le plus profond est d'environ sept pieds, la profondeur moyenne cinq pieds.

Il n'y a aucune difficulté à faire un canal des deux côtés de la rivière, mais le choix serait plutôt en faveur du côté canadien, où se trouverait, tant au-dessus qu'au-dessous du canal des baies profondes avec une eau tranquille qui favoriserait l'entrée des vaisseaux ; tandis que du côté américain, un courant rapide passe près des endroits ou devraient être construits les quais d'entrée. La longueur du canal d'une extrémité à l'autre des quais sera la même chaque côté un peu plus d'un mille. En terminant les quais d'en haut à la petite ou première baie au-dessus de l'Ile, le canal du côté canadien serait réduit aux sept huitième d'un mille, mais il y aurait si peu de différence dans la dépense et la distance qu'il vaudrait mieux faire de suite un canal parfait, et mettre les quais vis-à-vis la pointe au-dessus des Iles, où se trouve la grande baie : cette même baie où hivernent les vaisseaux américains. Le canal passerait en droite ligne presqu'au milieu de l'Ile, parce que la surface de l'Ile et le roc dont elle est composée étant réguliers et uniformes, on ne retirerait aucun avantage de l'adoption d'une ligne courbe.

Depuis le Sault jusqu'à l'Ile au Sucre, (*Sugar Island*), distance de trois milles, la rivière est large et profonde, et sa largeur varie entre un demi mille et un mille—le courant est modéré, et la profondeur varie généralement de quinze à quarante pieds. A la tête de cet Ile, on rencontre quelques battures, au milieu du chenal, qu'elles divisent en deux, sur lesquelles battures j'ai trouvé de cinq à huit pieds d'eau, mais comme il y a chaque côté, des chenaux profonds, il ne faudrait que mettre deux ou trois bouées pour guider les vaisseaux dans le chenal du nord, le plus large et le meilleur pour la navigation.

Depuis la tête de l'Ile au Sucre jusqu'au petit lac George, distance de quatre milles, il y a un bon chenal navigable, dont la profondeur varie entre quinze et soixante pieds. Le lac est de deux mille de long et d'un milles et demi de large. A son extrémité inférieure, le capitaine Bayfield, (dans sa carte) a indiqué un barrage qui traverse le chenal où il y avait neuf pieds d'eau en 1825, et où, en 1846, M. Killaly a trouvé six pieds neuf pouces d'eau. Après avoir cherché vainement à retracer ce barrage d'après la carte déjà mentionnée, je descendis le lac quelque distance plus bas, et pris une ligne de sondage, dans l'intention de traverser le barrage vers le côté sud du lac. Ramant contre le courant, et sondant continuellement, je trouvai de dix-sept à vingt-quatre pieds d'eau, jusqu'à ce que j'eusse atteint à une distance beaucoup au-delà de l'endroit où devait se trouver le barrage, tel qu'indiqué par la carte. Je retournai alors du côté nord où je trouvai dix-sept pieds d'eau, laissant au milieu un endroit où la moindre profondeur était de onze pieds : ceci me démontra que le barrage avait été brisé ce qui peut être expliqué par le fait que la glace s'amoncelant en hiver, l'eau se trouvait repoussée comme par une chaussée et se rejetant de côté et avec force sur la batture (qui n'est qu'un dépôt de sable mouvant) formait deux chenaux profonds, et changeait entièrement la nature de l'obstacle. M. T. S. Rubidge fera une inspection regulière de ce barrage avant son retour. Les steamboats n'éprouvent aucun obstacle à passer ce lac, même à l'eau basse ; deux bouées seraient nécessaires pour indiquer le chenal.

La rivière du Jardin (*Garden River*) arrive du nord à environ un mille au-dessus de cette batture. C'est un courant mort, l'espace de quatre milles en montant ; là où commencent les rapides, la rivière a environ neuf pieds de profondeur, et cent cinquante pieds de largeur. A son confluent avec la rivière Ste. Marie on trouve une batture qui s'étend environ un tiers du chemin à travers l'autre batture, laissant cependant un bon chenal pour les vaisseaux, d'environ six cents pieds de large et de trente à cinquante-quatre pieds de profondeur ; ce chenal est assez bien marqué pour n'avoir pas besoin de bouées.

De *Garden River* au lac George, plus bas que *Church's Landing*, la distance est de trois milles, ce qui fait treize milles depuis le Sault. L'Ile Jonas, vis-à-vis *Church's Landing*, divise la rivière en deux parties, toutes deux navigables pour les steamers de toutes classes. Le chenal du nord a de quinze à trente pieds de profondeur, et sa largeur navigable est de trois cents à six cents pieds. Le chenal du sud est aussi vaste, mais à la tête de l'île il est encore divisé par une batture sur laquelle je trouve dix pieds d'eau. Deux bouées sur cette batture, et une à la tête et au pied de l'île, pourraient être nécessaires pour indiquer les chenaux, mais les steamers qui voyagent maintenant sur la rivière n'en ont pas besoin.

Le grand lac George est d'environ neuf milles de long et de quatre milles et demi de large, et il a un bon chenal de pas moins de quinze pieds de profondeur, jusqu'à environ deux milles de son extrémité inférieure. Ici, le chenal, l'espace d'un mille et demi, est restreint à une largeur de cent cinquante à cinq cents pieds ; et à l'entrée supérieure de ce chenal comparativement étroit, il n'a que dix pieds de profondeur l'espace d'environ quatre cents pieds—il varie ensuite de quinze à vingt-huit pieds de profondeur. Le chenal dans cet endroit est bien marqué par dix-sept poteaux plantés à l'ouest. Une grande batture platte s'étend depuis ce point jusqu'à la rive ouest du lac, l'espace de quatre milles, fermant complètement le chenal dans cette direction. Sur cette batture, je trouve une profondeur uniforme de cinq pieds d'eau, là où, en 1822, lorsque le capitaine Bayfield fit ses sondages, il n'y avait que deux pieds. En prenant cette batture pour point d'observation, l'eau serait aujourd'hui de trois pieds plus haut qu'elle n'était alors, et en appliquant cette différence à la profondeur du chenal (dix pieds moins trois pieds= sept pieds, là où il marque six pieds), il paraîtrait que depuis ce tems, l'action du courant et le frottement des quilles des vaisseaux sur le fonds mou et boueux ont creusé la rivière un pied de profondeur. Le fonds est de nature à permettre assurément les travaux de creusage et de nettoyage, et d'après son peu de largeur comparé avec le volume d'eau entier de la rivière, tant au-dessus qu'au-dessous, il y a tout lieu de croire que le chenal s'améliorera d'année en année par la force naturelle du courant, lorsqu'on lui aura donné une direction à cet effet. L'accumulation des glaces en hiver favorisera sans doute ce travail comme elle l'a fait spontanément au petit lac George. Suivant le rapport d'une personne qui a été employée à planter les poteaux pour le Gouvernement des Etats-Unis, le lit, à une profondeur de dix-huit pouces à deux pieds, se compose de boue et de glaise, tandis qu'au-dessous ce n'est que du sable. Ce rapport sera examiné, et s'il est confirmé, les travaux de creusement seront certainement efficaces, et recevront un grand secours de la force du courant. Le courant ici est d'environ un mille et demi à l'heure. D'après les indications, et les renseignemens recueillis en comparant les récits de diverses personnes qui ont une grande connaissance du lac et de la rivière, il paraît que l'eau est maintenant de quatre pieds plus haut qu'en 1846, époque où M. Killaly observa quatre pieds dix pouces et demi sur le barrage qui se trouve dans ce chenal. En appliquant cette différence aux présens sondages, il y aura six pieds d'eau, aux plus basses eaux, la différence entre cette profondeur et la profondeur observée par M. Killaly, un pied et un pouce et demi, correspond à-peu-près avec la différence depuis le tems des sondages du capitaine Bayfield, et peut être attribuée à la même cause. M. T. Rubidge a reçu instruction de faire une inspection soignée de cette obstruction, dans la vue d'estimer la quantité de creusage qui serait nécessaire pour ouvrir un chenal de deux cents pieds de large.

Le rapide de Neebish, depuis le pied du lac George jusqu'à la tête de l'Ile St. Joseph, est de trois milles et demi de long, et de plus d'un quart de mille de large et d'une très-grande profondeur, excepté qu'on trouve par-ci par-là des roches qui paraissent quand l'eau est basse mais qui ne sont pas visibles maintenant. Les sondages varient de quinze à cinquante-quatre pieds, et indiquent un chenal direct et assez profond pour les steamers de toutes dimensions. Le courant n'excède pas deux milles et demi à l'heure, mais il deviendra sans doute plus fort par la baisse des eaux du lac Huron ; le capitaine Bayfield le cotte à quatre milles et demi.

Le chenal du côté ouest du lac St. Joseph ne présente aucun obstacle aux steamboats de première classe : à l'exception d'une petite déviation qu'il y a à la tête, il va en droite ligne jusqu'au lac de la Boue, (*Mud Lake*). Deux ou trois bouées seraient peut-être nécessaires pour indiquer le chenal en cet endroit.

Une batture à mi-chenal, au "Campement des matelots," sur laquelle le capitaine Bayfield a marqué cinq pieds d'eau, et sur laquelle il y a maintenant neuf pieds, demanderait des bouées pour la commodité des vaisseaux venant du Détroit et de Makinac.

L'autre chenal du côté nord de l'Ile St. Joseph, conduisant dans la grande Baie Georgienne (*Georgian Bay,*) est très-profond et très-large, et les roches indiquées sur la carte peuvent être évitées facilement par les vaisseaux qui sont familiers avec la route. Quatre phares seraient nécessaires sur la Baie Georgienne, pour la sûreté des vaisseaux qui voyagent entre Penetang ishine et le Sault.

S. KEEFER,
I. C. T. P.

TABLEAU montrant les dimensions, le tonnage, et divers autres détails, relativement aux principaux steamboats voyageant actuellement sur les lacs d'en haut et la rivière Hudson.

NONS DES BATEAUX.	Longueur totale.	Longueur du bau.	Largeur totale.	Profondeur du fond de cale.	Tonnage.	Tirant d'eau lorsqu'il n'est pas chargé.	Tirant d'eau lorsqu'il est chargé.	Diamètre ou cylindre.	Longueur de la course du piston.	Diamètre de la roue.	Longueur du piston.	Vitesse à l'heure, par milles, sans charge.	Vitesse à l'heure, par milles, avec une charge.
	pieds.	pieds.	pieds.	pieds.	tonn.	pieds.	pieds.	pces.	pieds.	pieds.	pieds.	milles.	milles.
Sur les lacs d'en haut:—													
Le May Flower..................................	287	35½	63	13½	1400	8	9	72	11	35	11	15½	13½
Le Empire State, d'abord de 310 pieds, et augmenté de 16 pieds (en 1852)........................	326	37	63	15	1700	7½	9	74½	10	36	9½	15.	13
Le Southern Michigan..................................	315	37	65	14	1600	7½	9	72	12	36	10	16	14
Le Northern Indiana..................................	310	37	......	......	1475	......	......	......	......	......	......	......	......
L'Atlantic..................................	267	33	58	13½	1200	8	9	60	11	33	10	15	13
Le Niagara..................................	245	33½	......	14	1200	......	......	65	10	30	......	......	......
L'Océan..................................	256	33½	58½	12½	1100	8	9½	60	11	32	10	15½	13½
Le Arctic..................................	230	30	54	11	900	7	8½	50	10	26	10	14	12
Le Cleveland..................................	200	29	50	11	640	6	7½	42	11	29	8½	15	12
Le Canada..................................	208	30½	55	13	......	......	......	60½	11	30	10	......	......
Le Sultana..................................	230	30½	54½	18	872	......	......	50	11	30	......	......	......

TABLEAU montrant les dimensions, le tonnage, etc.—(*Continuation.*)

NOMS DES BATEAUX.	Longueur totale.	Longueur du bau.	Largeur totale.	Profondeur du fond de cale.	Tonnage.	Tirant d'eau lorsqu'il n'est pas chargé.	Tirant d'eau lorsqu'il est chargé.	Diamètre de Cylindre.	Longueur de la course du piston.	Diamètre de la roue.	Longueur du piston.	Vitesse, à l'heure, par milles, sans charge.	Vitesse à l'heure, par milles, avec une charge.
	pieds.	pieds.	pieds.	pieds.	tonn.	pieds.	pieds.	pcs.	pieds.	pieds.	pieds.	milles.	milles.
Le Isaac Newton, Rivière Hudson	345	40½	85	11	1450	6¼	......	82	12	40	11	16	......
Le Hendrick Hudson, do	341½	36	72	10¼	1300	......	......	72	11	......	......	......	......
Le Francis Skiddy, do	327	38	......	......	......	6	......	70	14	40	11	......	......
L'Oregon, do	325	35	69	10	......	6	......	72	11	35	11	......	......
Le United States, Lac Champlain	250	28½	57	11	......	6	......	50	11	29	9½	15	......
Nouveau steamboat de M. Ward, construit au Détroit	328	40	69	14	1700	8	9½	81	12	40	11	......	......
Nouveau steamer en fer de M. Heron, construit à Niagara	221	24½	......	11	......	6	......	50	6	26	7	......	......
Le canal Welland admet les vaisseaux de	142	......	26¼	......	450	......	9½	......	......	......	......	......	......
Le St. Laurent admet les vaisseaux de	185	......	44	......	500	.....	9	......	......	......	......	......	......

Québec, 19 août 1852.

S. KEEFER,
I. C. T. P.

AMÉLIORATION DES RAPIDES, FLEUVE ST. LAURENT.

Québec, 19 août 1852.

Monsieur,

L'inspection relative aux améliorations projetées dans les rapides du fleuve St. Laurent étant encore incomplète, je ne suis pas en état de faire un rapport final sur la nature et l'étendue des travaux qui seraient nécessaires pour effectuer l'objet désiré.

Les inspections et examens qui ont été faits, m'ont cependant mis en état de faire un estimé approximatif du coût de ses améliorations, basée sur la supposition que le chenal pourra admettre les vaisseaux tirant dix pieds d'eau, et que pour obtenir cette profondeur d'eau, il faudrait le faire de onze, douze ou treize pieds de profondeur, suivant la force du courant là ou ces améliorations devront être faites. Cet estimé se monte à £30,000, comme suit :—

Aux Rapides du Côteau.	
Miner et faire un passage à travers les roches qui barrent le chenal mitoyen entre l'Ile au Cochon et l'Ile du Prisonnier, sur une largeur de deux cents pieds, une profondeur de douze pieds et une longueur de cinq cents pieds, avec des places de phares à l'entrée	£5,000
Construire des jetées sur les battures des rapides, aux battures d'en haut et d'en bas, frappant obliquement le courant, de manière à faire monter l'eau à la hauteur nécessaire	8,000
Aux Cascades.	
Construire des chaussées pour jeter plus d'eau sur les bas fonds au Roc Fendu.	13,500
Miner et faire disparaître le rocher à la Balize et à la Meule de Foin, (Haystack)	500
Aux Rapides de Lachine.	
Enlever les roches, et creuser au-dessous des rapides	1,000
Trente bouées entre Prescott et Montréal	300
Surintendance et dépenses contingentes	1,700
Total	£30,000

On peut voir par cet estimé que les principaux obstacles se trouvent entre le lac St. Louis et le lac St. François. D'après les examens qui ont été faits jusqu'à présent, on serait porté à croire qu'il n'y aura aucune dépense à faire aux autres rapides.

Je ne doute aucunement du succès des améliorations proposées—mais le St. Laurent est sur une trop vaste échelle, pour qu'on agisse a son égard comme on agirait pour une affaire ordinaire. En préparant les plans, l'effet des travaux projetés sera donc considéré soigneusement afin qu'on n'entreprenne rien de douteux, et que les travaux soient commencés et continués avec toute la prudence convenable.

J'ai l'honneur d'être,
Monsieur,
Votre obéissant serviteur,
SAMUEL KEEFER.
I. C. T. P.

L'honorable John Young,
Commissaire en chef des Travaux Publics,
Québec.

IMPRIMERIE DE LOUIS PERRAULT RUE DES JARDINS.—QUÉBEC.

J. Braun

REPORT

OF

THE COMMISSIONERS

OF

PUBLIC WORKS

FOR THE

YEARS 1852 AND 1853.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

QUEBEC:
PRINTED BY JOHN LOVELL, MOUNTAIN STREET.
1854.

GENERAL REPORT

Of the Commissioners of Public Works for year 1852-3, Laid before the Lgislative Assembly in accordance with the provisions of the Act 9 Vic. Cap. 37, Sec. 14.

J. CHABOT,
Chief Comm. of Public Works.

DEPARTMENT OF PUBLIC WORKS,
QUEBEC, 22nd June, 1854.

To His Excellency, The Right Honorable James Earl of Elgin and Kincardine, Governor General of British North America, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY ;

The undersigned have the honor to submit the following General Report for the year 1852–53, in accordance with the Provisions of the Act 9 Vic., chap. 37, sec. 14 ; which requires that the Commissioners of Public Works shall prepare and submit to the Governor General in Council, to be laid before the two Houses of the Legislature within twenty-one days from the commencement of each Session, a " Report on all works under their control shewing the state of each work, " the amount of receipts and expenditure thereon, together with such further in- " formation as may be requisite." To this Report are appended the following statements.

No. 1.—Statement of the works in Canada which yield revenue, and which are under the charge of the Department of Public Works, shewing the cost of the construction thereof to 1st January, 1854, and the expenditure thereon since the date of last Report : also the cost incurred for repairs, maintenance and management.

No. 2 —Statement of the works in Canada from which no revenue is derived, shewing the total amounts of public money expended thereon up to the first of January, 1854 ; also the expenditure on them by the Department of Public Works, since date of last Report, distinguishing those works which have been given up by the Government, and those which it is intended should be sold or given up.

No. 3.—Statement of the expenditure made by the Department of Public Works, since date of last Report, on the repairs and maintenance of the Provincial Light Houses, Buoys and other works connected with the inland navigation.

No. 4.—Statement of the amounts paid on awards for damages on each work, since date of last Report, shewing the amounts awarded, also the amounts paid to the Arbitrators or Commissioners for services and expenses.

No. 5.—Statement shewing the total amount expended by the Department of Public Works as detailed in the foregoing statements.

No. 6.—Statement of the Water-power and lands leased or sold on, or in the vicinity of the several Canals or Public Slides; with the names of the Lessees and Purchasers ,machinery adopted or proposed, amounts of sales and rents to the first of January, 1854.

No. 7.—Statement shewing amounts appropriatod for Public Works during the last Session of the Legislature, together with the balances of former appropriations then available for expenditure on each work, the amount thereof expended to the 1st January, 1854, amounts yet unexpended and sums required towards the completion of those works.

Welland Canal.

The Report of the Superintendent of this Canal (see Appendix A,) represents it to be in good and efficient working order. This report the undersigned, from a recent general examination of the line, are enable to confirm.

The various works stated in the last Report from the Department as being then necessary, such as strengthening the embankments, raising and facing the banks with stone, providing several sets of Lock Gates and Bridges to replace those that were destroyed, &c., &c., have been judiciously executed and provided, and the maintenance of the Canal is duly and economically attended to. Considerable expenditure has been unavoidably incurred, to afford facilities and meet the wants of the trade through this Canal, which the undesigned are happy to observe, continues steadily to increase.

In 1849 the gross revenue from tolls amounts to	£34,741	18	8
1850 do do	37,925	17	7
1851 do do	50,460	6	8
1852 do do	58,273	7	7
1853 do do	65,002	14	8½
If to this latter amount be added the sum of £1865 18 1 being the amount of the Hydraulic Rents, the gross revenue from this Canal for the past year will be	£66,868	12	9½

The lighting of the Locks and Bridges by night, and the construction of the second Towing path from St. Catherines to Thorold, have tended importantly to facilitate the passing of vessels. The former is still affected by means of Oil-lamps, but satisfactory arrangements have been made for gas, the works necessary for producing the supply of which are now far advanced.

Vessels drawing 9 feet 8 inches of water pass freely through the Canal, and when the Coping-timbers and Slash-boards, which are now being put on the Locks, are completed, ten feet draft of water can be carried well through.

The works of port Dalhousie and port Colborne Harbors are in a good state, and the portion of the Pier at Port Maitland, which had been injured by heavy gales on Lake Erie, has been repaired. At Port Dalhousie the increase of trade renders it necessary to extend the East Pier about 200 feet, and that at the entrance to the Lock about 100 feet.

Notwithstanding all that has been thus done towards adding to the capabilities of the Canal, the undersigned believe that the time will very shortly arrive when it will be necessary to adopt a new branch from Thorold down, with enlarged Steamboat Locks, and to build a corresponding Lock at Allenburg and at Port Robinson ; and they are of opinion that no time is to be lost in having the Canal bottomed throughout from Allenburg to Port Colborne, to the breadth of fifty feet, and to the depth suited to the level of Lake Erie, as the feeder.

Most of this portion is new bottomed to that depth, but to a breadth only of twenty-six feet, with lie-bys at every half mile. This breadth would certainly be found insufficient to pass the number and class of vessels now in the Trade, were the surface of the Canal lowered to the level of Lake Erie. The necessity for at once commencing this enlargement is obvious, from the fact that the supply of water from the Grand River during the summer months of the past and preceding years, was very insufficient, even after all the mills which drew from it had been stopped. This supply must annually decrease as the country from which it derives its source is cleared up, which the demand for a greatly increased supply is annually becoming stronger.

The work of widening and bottoming, to adapt the Canal properly to the Lake Erie level, must principally be effected by dredging, and as with a reasonable number of dredges, the accomplishment of it would require four years, at least, it is clear that the commencement of it should no longer be postponed.

The extension of the inner Harbor accommodation at Port Colborne is now also imperative. In its present dimensions, not more than from 30 to 40 vessels can safely lie in it, and with the wind S. by W. to N. W. it frequently happens that a large fleet makes for it at the same time, when, notwithstanding every exertion being made by having the Lock doubly manned, and passing the vessels through as fast as possible night and day, the Harbor becomes blocked up, and vessels run into each other, as from the nature of the coast, they dare not venture to lie off with the wind on shore.

A sum is set down in the estimates to cover the cost of this improvement, and the cost of the work of widening for the year 1854.'

Another expenditure strongly called for on this Canal, is the construction of a weigh-lock, such as is in use on the American Canals, for testing the correctness and authenticity of the clearances furnished by the Masters, and by which the amount of Tolls is regulated. Notwithstanding the utmost vigilance on the part of the Collectors, it is not possible without such aid, to put a stop to the loss which the revenue has hitherto been subjected to ; and the undersigned have no doubt but that the cost of the Lock would be more than amply compensated for by the suppression of frauds, now practised.

The Canal was opened on the first of April, and closed on the seventeenth of December, giving 261 days of navigation. The detention of vessels by accident or injury to the gates, was very trifling,—much less than in any former year.

In every case of breakage of gates, extra ones were in readiness to be substituted ; and the interruption to the navigation generally did not exceed from 12 to 36 hours according to the number of gates broken.

St. Lawrence Canals.

Under this head are included the undernamed short Canals, constructed to overcome the Rapids of the River St. Lawrence, at which they are respectively situated, viz :—The Galops Canal,—The Point Iroquois Canal,—The Rapide Plat Canal,—and the Farrans Point Canal.

These Canals were generally opened on the first of May, and closed on the first of December 1853, thus affording a business season of seven months for the year 1853.

They have been kept in good working order, with ordinary repairs. The sundry improvements detailed in the last Report of this Department, and provided for by appropriations, have been, or are nearly completed, amongst which may be mentioned, the Pier by which the lower entrance to the Farrans Point Canal, has been so much improved as to allow of the trade being now tugged through it, instead of through the American channel, by which a saving of about three miles is effected.

The works of the "Junction Canal," which is to unite the Galops and Iroquois Canals, are still far from completion. They had been first let out to the

Contractors whose tender was the lowest, and, on their failing to prosecute the works properly, they were relet to the present Contractors who were next in succession, and who undertook them at their original tender. From difficulties arising, in some measure, from mismanagement, increased by the height of water in the River, and the great scarcity and advanced price of labor, unexpected by the present Contractors at the time of their taking the contract, their progress has also been very unsatisfactory. Their securities are now assisting in urging on the prosecution of the works, which, it is hoped, will be fully available on the opening of the navigation next season.

Cornwall Canal.

This Canal was opened on the twenty-ninth of April and closed on the fourteenth of December, 1853. It has been kept in good working order during the season, at a moderate outlay, through the attention and efficiency of the Superintendent. The heavy embankments have stood well, and but few accidents have happened to the Lock Gates. Where breakage occurred it was promptly repaired, and the navigation interrupted for as short a period as possible, spare Gates being on hand in all the Canal.

The new Lock Houses have not yet been built, but tenders for their construction are being called for, on receipt of which, contracts will be entered into, and the works be put in progress. The Pier at the lower end of the Canal must also be lengthened.

Beauharnois Canal.

This Canal was opened on the twenty-ninth of April, and closed, (prematurely by a few days), on the twenty-fourth of November, in consequence of the Steamer " Lord Elgin" coming in forcible contact with the lower Gates of Lock No. 6.

During the period of navigation, two interruptions to the Trade took place, one on the 22nd of July, when the lower Gates of Lock No 13, were carried away by the Steamer " Ranger," which caused a delay of 48 hours. Another took place on the 20th of September, when the upper and lower Gates of Lock No. 8, were destroyed by the Steamer " Bytown" which caused a suspension of the Trade for 44 hours.

Several sets of spare gates are now completed, and others are contracted for and in course of construction by Mr. Chaffey, for the Canals generally.

The Locks and embankments are in good order, and the face of the banks generally well protected by stoning : and the ordinary repairs are steadily proceeded with, so as to keep the Canal in fair working condition.

There are several places, in some of the reaches, where, from the nature of the loamy clay of which the banks consist, deposit has taken place, which causes trouble in passing heavily laden vessels. There are no dredge vessels suitable for Canal work now at the command of the Department, and it will be necessary in the course of this summer to let off the water for a few days in order to remove these obstructions, of which advantage can be taken also to effect several matters of repair and improvement on the other Canals, which could only be done satisfactorily at such a season.

It is proposed to procure two dredge vessels for the use of the several Canals between Prescott and Montreal, one to be a single Bucket Dredge—the other with rotatory Buckets.

At the lower entrance to this Canal an extension of about 200 feet is required to the Pier, to afford more room for vessels to moor at, while waiting for the Tug vessels, or to be passed through the Lock.

Much difficulty has been experienced in getting the works of the several waste and regulating Weirs pushed on by the Contractors as they should be. Those at Locks 6, 9, 10, 11, 12 and 13, are now well advanced. Those at Locks 7 and 8 are still backward ; but that at Lock 14 it would appear the Contractor has abandoned, owing principally to the expense of pumping out the foundation; but, no doubt also, to the insufficient price at which the work was taken. The experience of every season goes to shew more and more distinctly the inexpediency of letting works, the construction of which is promptly required for the convenience or safety of the Canals, to parties, simply because they are the lowest bidders. Delays sometimes, extending to years, take place in defiance of every exertion by the department, and the work ultimately costs more than it would have done, if let, at reasonable prices, to competent Contractors.

The protection Pier at St. Timothée Bridge has been completed, and a new Bridge substituted for the old one. The other Bridges generally have been renewed or repaired except one, a new superstructure for which is now in hand.

The extensive Paper works, established by Mr. Miller, at the head of this Canal, are now in full operation, and a number of hands thus profitably employed and no doubt other manufactures will shortly be erected there.

Lachine Canal.

This Canal was opened on the 20th of May, and closed, generally on the 2nd December, 1853; but vessels were passed from the River into the Dock, until the 13th of December.

Some serious obstructions to the navigation of this Canal occurred during the year 1853. On the 7th of May, at 10 o'clok at night, the Steamer "Scotland" damaged the Gates of Lock No. 3, which detained the vessels until ten o'clock on the morning of the 9th, a delay of 36 hours.

On the 6th of July, the Steamer "Princess Victoria" injured the Gates of Lock No. 4, causing a detention of 19 hours.

On the tenth of November at 6 o'clock, P. M., the Schooner "John Patten" destroyed a pair of Gates of Lock No. 4, rendering the substitution of a new pair necessary and interrupting the navigation for 71 hours.

And, on the morning of the 22nd of November, at 7 o'clock, A. M., one of the lower Gates of Lock No. 2, gave way, which caused a delay of 100 hours, owing to the inclemency of the weather, and to the fact of the Spare Gates having been above the Lock.

The erection of some houses for Lock and Bridge tenders is required on this Canal, preparations for which will shortly be made.

Great inconvenience is suffered for want of sufficient Wharf accommodation. During the past season, vessels have been detained for three days before they could get alongside a wharf. It is high time that a commencement should be made with the construction of the Docks, for which the necessary ground has been acquired and paid for.

The undersigned are of opinion, that the present Main Basin should be dredged, and the wharf walls under built, or otherwise secured so as to accommodate Atlantic Vessels. Also that a commodious Dock, with 16 feet of water, should be constructed on the ground adverted to. This Dock should have two entrances from the present Basin, rendering the re-acquisition of the property sold to Messrs. Tate, according to the condition of sale necessary. The resumption of this property can be effected, either by making reasonable compensation for the expenditure, and granting a new site suitable for the purpose of a graving-dock, or otherwise as may be thought best. But it is of great importance to the trade that a proper dry dock should exist at the end of the Canal.

It is to be regretted that this property had been so disposed of, it is directly in the way of the improvements which the trade requires, and the works erected on it, in their present state, must be considered as a nuisance to the Canal. The inner Gates and Recesses, &c., have been so unsuitably constructed, that they are not available: the consequence is the security of the Canal is endangered and the Dock and the whole of the inner Basin have to be filled and discharged, thus causing a great unnecessary waste of water, that lowers the Basin from which the Mills are supplied, from 6 to 8 inches, every time a vessel has to be let in or out of the Dock, besides seriously impeding the passing of deeply laden vessels through the Lock.

On two sides of the proposed Dock, it is intended there should be ample ground reserved for extra wharves and stores; such ground to be sold to parties applying for it; and each of the stores to be supplied with water to work grain elevators; and on one side is to be formed an extensive public wharf, with produce sheds or stores, &c., &c. Increased facility for access from the City to the south side of the Canal must also be afforded, by the establishment of one or more Bridges, widening the roads, &c., &c.

But little progress has been made with the works of the supply Gate and Channel at the head of this Canal, for the admission of a greater volume of water. The Contractor has urged the great difficulty of obtaining labor and teams, but means will be now taken to enforce a more satisfactory rate of progress.

Considerable interference with the navigation of this Canal has been caused by the mode and period of construction of a culvert undertaken by the Montreal Water Works Company, and also by the erection of a Bridge to convey the Grand Trunk Railway over it. A large proportion of the works of the former ought to have been prepared for and executed during the Summer, thereby leaving as little as possible to be done during the inclemency of the winter, and thus securing the opening of the navigation in due time. A contrary course, however, was adopted, as appears from the following extract of a Report of the Superintendent, dated 24th January, 1854. " The Montreal Water Works Company are " now engaged excavating for the purpose of building a culvert under the Canal, " above Brewster's Basin through which they intend to pass their main pipes; " this work is progressing very slowly. It is now two months since they com- " menced work on this culvert, should they continue at the same rate for 4 " months to come, the work will not be more than three-fourths completed. This " work should be finished, and the Dams across the Canal removed, as early as " the tenth of April next, in order to secure the opening of the Canal by the first " of May.

" The Grand Trunk Railway Company are making preparations to build a " Swing Bridge across the Canal, near this culvert, very little, however, has been " done, except delivering stones for the work."

River Lights, Buoys and Beacons.

Besides the repair and maintenance of the several Lights and Beacons established at date of last Report, between Montreal and Kingston, much has been done since that period to facilitate and render safe the navigation of that part of the River. Some buoys were carried away by the ice, for which others are being substituted, and additional ones are about being placed at points which it has been found desirable to have marked.

Besides the Piers which have been constructed to improve the entrance to the Canals, several Light Houses have been located in the most intricate parts of the River. Some of them stand on Piers, which have been sunk for that purpose; others on promient points. By means of these Lights, the services of the

Tug line and of the Mail Boats can be performed during the night as well as by day. The principal ones are at, Grenadier Island, Fiddler's Elbow, Lynedock Island, Gananoque Narrows, Jack Straw Shoal, The Spectacles Island, Red Rock, and Burnt Island. There with one more at Coleman's Creek, will be found to afford important facilities for navigating the River by night between Kingston and Prescott. A light near Chimney Island, below Prescott, would enable vessels to be towed by night from the head of the Galops Canal, and thus much time would be saved.

In the Narrow's below Gananoque, there are some large Rocks by which the navigation is much obstructed, and applications to have beacons placed upon them have frequently been made: but prior to doing so, the undersigned thought it advisable to consult Messieurs Maillefort and Raasloff, Submarine Engineers, as to whether these rocks might not be removed at a moderate expense; by which the Channel would be much improved, and the cost of maintaining the Beacons avoided. The Report of these Gentlemen has not yet been received.

The expediency of establishing a fixed light, instead of one of the floating Lights in Lake St. Louis, and of adopting the same course in Lake St. Francis, is under consideration. The cost attendant upon the maintenance of Floating Lights is so heavy, that it is desirable to substitute fixed Lights for them, wherever practicable at a moderate expense.

In the River Ottawa, between Bytown and Lake St. Louis, some lights are much called for.

Those first required are; four between Bytown and Grenville Canal, and two between St. Ann's Lock and Lake St. Louis. These, with a few Buoys, are very necessary for the improvement of the navigation of that River.

A Pier and light on Indian Point in the Bay of Quinté, would tend importantly to the safe entering of that Bay by the "Upper Gap." A great many vessels now trade between this Bay and Oswego, and the entry to the "Gap," on a dark and stormy night, is both difficult and dangerous. The Light referred to would give confidence to Masters of Vessels, and would enable them to enter, when, without it, they would be obliged to stand out all night.

At the entrance to the Bay of Kingston, Snake Island stands almost mid-channel, and from it a very dangerous reef extends, on which several vessels have been lost. A light distinguished by color, from that on Nine Mile Point, would add very much to the safety of navigating, that part of the Lake.

In Lake Ontario, a Light House is being built on the "Scotch Bonnet" or "Egg Island," a small low Island lying S. E. off Presqu'isle, and in the direct line of the Mail and other vessels running down the Lake from Coburg, &c.

In Lake Erie, the preparations for the Pier proposed to be sunk at the extreme point of Pointe Pelée Reef, are far advanced. The Cribs are all framed; the necessary timber is on the ground; the stone quarried, and the proper arrangements are made for towing the Cribs to their berths, as soon as the appearance of the weather is such as to justify the expectation of a few calm days which are indispensible for making the attempt with safety and success. The position of this work is greatly exposed; and, in all the operations connected with it, great difficulties have to be encountered.

On Lake Huron, there has been as yet, but little progress made towards the erection of the several Light Houses, which are so much needed there. Along the entire of the Canada Coast of this vast Lake, the mariner is wholly unaided by either Lights or Buoys, with the exception of the Solitary Light at Goderich. The opening of the Toronto and Lake Huron Railway, and the wants of the numerous and rapidly increasing settlements in the section of the Province bordering on that Lake, make it necessary that no further delay should take place in establishing such Lights as are essential to the encouragement and safety of its commerce.

From the best information collected chiefly through the kind interest of the Honorable W. B. Robinson, from Captain MacGregor, of the Gore Steamer, who has been for several years commanding a Steamboat on Lake Huron, and from others, it is believed, that the following are the Lights which are most required in the first instance.

On the east coast of the main Lake, one third class upon Kettle Point, near the foot of the Lake, between the mouth of the River and Goderich, where a very dangerous reef runs out to a considerable extent. One (a second class) on the N. E. point of Chantry Island, near the mouth of the River Saugeen, about 30 miles above Clarke's Point.

One (second class) on the S. E. side of White Fish Island, 18 miles N. by W. from Saugeen, where there is a Harbor represented to be one of the best and and most easy of access between Goderich and Cape Hurd. One (first class) on the S. W. and of the Isle of Coves, in the Straits at the entrance to Georgian Bay. One (third class) on the S. E. end of Christian Island which will answer both for Penetanguishine and Collingwood. One (second class) on the S. E. end of Griffiths Island, at the entrance to Owen's Sound Bay, and about 35 miles from the before mentioned site. One (third class) on Badgley Island, about 75 miles from Griffiths Island, and at the entrance to the North or Montreal Channel between Georgian Bay and Sault Ste. Marie. One (third class) on Clapperton Island, about 30 miles west of Badgley Island ; and one (second class) on the North eastern point of Isle St. Joseph, about 80 miles west of the latter.

A pier of about 500 feet in length from Chantry Island towards the main shore, would be of important service, in forming a Harbour, to meet the wants of that section of country, which is rapidly being settled.

River Richelieu.

The navigation of this River at St. Ours, was opened on the 13th of April and closed on the 4th of December 1853, during which period it was maintained without interruption, excepting a stoppage of about four hours, caused by breaking of a rail in one of the Lock Gates.

The works are generally in good order; a wall of 260 feet in length has been built from the Dam around the point of the Island, which secures that portion of it and the Dam.

During the course of the season, a heavy leak took place through and under the Dam, which was however, quickly stopped, and the Dam made good.

As the Slides in the banks north of the Dam have not increased lately, and as it is probable that the banks may take a natural and safe slope, it has been thought advisable to postpone the building of the intended protection Pier, until the form which the Banks are likely to assume becomes more fully developed.

Some repairs are required below the Lock, and will be effected when the level of the River is down to low Summer water.

Chambly Canal.

This Canal was opened on the twenty-eighth day of April, and closed on the second day of December. The navigation was not interrupted during that period, except for two days and a half, in the latter end of May. This interruption was caused by the sinking of a barge.

With the exception of the entrance combined Locks at Chambly, built under this Department, the works of this Canal are in a very ruinous condition, Locks 2, 3, 4, and 5, particularly, are in so bad a state, that it would be necessary to rebuild them. The Bridges also are very much out of repair.

About the latter end of December, an ice dam formed across the River Richelieu, above Hatt's Mills, for the first time in the memory of the oldest inhabitant, causing the water to flow back into and fill the Canal; and rain coming shortly after, the dam in the River was burst, and such a current thereby created in the Canal, as seriously to injure the banks in several places.

To put this Canal into an efficient state, even on its present scale, would require a very large expenditure, the incurring of which, would appear to the undersigned, to be imprudent until the important question (hereafter referred to) as to the construction of a Canal to unite the St. Lawrence with Lake Champlain is first decided by the Legislature. It is proposed therefore to expend this season, as little as possible upon the temporary repair of such works as interfere with the navigation in their present state.

Ste. Anne's Lock and Dam.

The navigation of the Ottawa, through this Lock, was opened on the twenty-fourth of April, and continued uninterrupted until the twenty-eighth of November 1853, when it was closed for the season.

The North Pier below the Lock is too low in time of high water, and must be raised at least three feet; and a Pier of about 150 feet is much required above the Lock. These Piers with the clearing of the upper approach to the Lock, from stones and rocks, for a width of about 100 feet, and to the depth of the Mitre Sill, are indisputably necessary, and it is proposed to undertake them on the falling of the water to low summer level.

A Bridge over this Lock is being built by the Grand Trunk Railway Company, and the direction which the line of the Pier in the River gives to the water, has created a current at the end of the west Pier, below the Lock, so as seriously to interfere with the safe entrance of a vessel to it.

To remove this difficulty the extension of the Pier, probably some 150 feet, will be necessary, the cost of which the undersigned are of opinion should be borne by the Railway Company referred to.

Independent of this Pier, further improvement is required at the lower entrance of this Lock; and a Lock-laborer's house and an office for the Collector, are also indispensable.

Ottawa Works.

The state of the several Public Slides, Booms, &c., on the River Ottawa and its tributaries, together with the outlay thereon, &c., will be found fully described and detailed in the Report of the Superintendent, hereunto annexed (see Appendix, letter B.)

Since the date of the last report by this Department, the Dams necessary to create the water privileges at Victoria Island, have been constructed; several lots have been sold, on some of which extensive buildings and machinery are being erected; applications have been received for more sites, and it is proposed shortly to advertise another sale of such a number of lots as will meet the present demand of those who propose, *bonâ fide*, to erect machinery, and to prevent as far as possible, these lots from getting into the hands of those who merely buy on the speculation of selling again.

The undersigned have had the necessary surveys, plans, and estimates made for the Chatts Canal, with which it was decided by the Legislature that the works for the general improvement of the navigation of the River Ottawa should commence, and towards which an appropriation was made. The examination and report of the Engineer set at rest the vexed question as to the side of the River upon which this improvement should take place—and the north side is now clearly ascertained to be the proper one for it, whether as regards the approaches to it, the cost of construction, and other material points, such as its not being interfered with by the running of rafts, &c., &c.

Several tenders forthe work have been received, the rates of which are low, considering the very great increase in the prices of labor and materials.

This Canal is carried through a natural ravine, which presents a very favorable line for it, and upon which comparatively but little excavation will be required. Besides the excavation the work consists chiefly of two Dams, of no great magnitude, Piers at each entrance of the Canal, and six Locks. The latter it is proposed to build in a rough but substantial class of masonry.

In the ravine through which the Canal is to be carried, some excavation and other works, were formerly done by Mr. Wright, in the construction of slides for the passing of lumber from Lake to Lake. A portion of this work is now available for the purposes of the Canal, and Arbitrators have been appointed to value the amount which should be paid to Mr. Wright for it, as well as for the lands necessary to be acquired.

Pending the advertising for tenders and commencing the works of this portion of the improvement of the Ottawa, the Engineer was instructed to proceed with the Surveys, &c., necessary to decide upon the works required to overcome the Chaudière and Duchêne rapids, between Bytown and the Chaudière Lakes. In the performance of this service, three routes have been examined, the first, leaving the river and ascending the Rideau Canal to the Bytown level, by the existing Locks, thence descending to the Chaudière Lake, for which two Locks would be necessary. The second route leaves the river at the head of the Bytown Basin, and follows along the south or Upper Canada side of the river. The third takes the north or Lower Canada side.

The report of the Engineer is strongly in favor of the second line. He enumerates the objections to the first as being, that the Canal would be four miles longer—that ten Locks would have to be passed instead of six, that the sufficiency of water from the summit level is questioned by many, (although he appears to think it might be increased,) and that, by taking this first line, the scale of the Ottawa navigation would necessarily be limited to that of the Rideau Canal. Its construction, however, would cost about £45,000 less than that of one upon the second line.

The advantages of the second over the third line are: it is two miles shorter, a large portion of rock excavated would be suitable for building the Locks, cost of land much less, only one public road to cross, and cost of its construction about £60,000 less than that of route number three.

On the completion of the works at the Chats and the Chaudière, a fine and uninterrupted navigation of 120 miles would be opened, along which numerous Saw, Flour, and other Mills are already established, and several others are in course of erection.

For the Report of the Chief Engineer to the Department upon the lines explored for the Chats Canal, and for the size of the Locks adapted for the Ottawa navigation, (see Appendix, Letter C.)

St. Maurice Works.

Full information on the state of the Works on the River St. Maurice, the expenditure thereon, the sum required to complete them, and the new works which the experience of the last spring shows to be yet necessary will be found in the Report of the Superintendent, (see Appendix, letter D.)

From that Report it will be perceived, that great difficulties have had to be encountered, and that although a very considerable amount of work has been done, much still is required to ensure safety of property, and that the full benefits calculated on from these works may be realized, such expenditure however, will be fully justified by the opening of the great tract of Country bordering on this River, and its tributaries; the facilities afforded to the Lumbering operations thereon, and the revenue resulting from it.

River Trent Works.

These works may be classed under two heads.

1st.—Those of which the improvement and maintenance are indispensable, if the necessity for keeping open the existing inland navigation of that Section of the Country is admitted.

2nd.—Those which are solely required for the assisting in the passing of Timber, and for other lumbering operations.

With respect to the work comprised under both of these heads, in a Report from a former Chief Commissioner of this Department, it was strongly recommended that the entire should be disposed of to the Municipalities in which they are situated. Advertisements to that effect were inserted in the papers, but several difficulties occurred to prevent this course from being carried out. Since that time, it appears to be generally acknowledged, that such of the works as are required for the maintenance of the navigation should be kept up, and expenditure thereon has, from time to time, been sanctioned, and partial appropriations have been occasionally made for them by the Legislature.

The works of this class are :—The Dam at Crooks', by which Rice Lake is kept up to a navigable height, and the navigation is extended to Whitlas Rapids, a length of 38 miles.

The Lock and Dam at Whitlas, which keep up the water for navigation through to Peterborough, a distance of 1¼ miles.

The Lock and Dam at Bobcaygean, by which the navigation from the Portage-landing on Mud Lake, 7 miles north of Peterborough, to Cameron's Falls, in the Township of Fenelon would be established, a distance of 33 miles. This Lock is now in ruin.

The Dam at Buckhorn, by which 24 miles in extent are rendered navigable, and—

The Lock at Lindsay, called the Scugog Lock, which opens a navigation from the head of Lake Scugog to Bobcaygean, a distance of 50 miles.

An appropriation was made last Session, for the repairs of Scugog Lock and Dam, the partial clearing of the Scugog river below the Lock, the repair of Buckhorn Dam, and the renewal of the Lock and Dam at Bobcaygean, but, on a more particular examination of the state of the latter works, it was found that much more was required than could be effected for the amount available towards it.

The Report of Mr. Ranney the Superintendent (see Appendix letter E), will shew the works that have been executed during the past year. In it is also given a description of each work, the amount expended, and the work which he considers absolutely necessary to be done, when the water falls during the present season; but it will be seen from this Report that the expenditure and work contemplated by Mr. Ranney, are confined wholly to the passing of timber, and do not include what is necessary to render efficient the extent of navigation above detailed.

Shortly after the prorogation of the House, last year, Mr. Rigney, who has much practical experience in such works, received instructions to examine and report on the state of the navigation, and to furnish an estimate of what he considered necessary to put them into a permanent state of efficiency. (For this Report see Appendix letter F.) It appears from it that he estimates the cost of making the navigation really and permanently effective at £12,600. Some of the prices appear, at first glance, to be high, but when the great rise in the rates of materials and labor, and the difficulty of procuring laborers at any price, are taken into consideration, the estimate may be regarded as a just one, especially as a good deal of difficulty from water may be anticipated during the execution of the work

The balance of former appropriations remaining amounts to £3250 18s. 1d., leaving the sum of £9249 1s. 11d., to be voted for the completion of this navigation.

This expenditure appears, to the undersigned, to be fully justified when the great extent of good navigation to be made available by it is taken into account, as well as the facilities and encouragement it would afford towards the settling of several new Townships bordering on it. Very fine Saw and Grist Mills have been constructed by Mr. Wallis and others, and a considerable number of inhabitants have been induced to settle in that section of the Province, in expectation of this improvement being carried out. Moreover, the two lines of Railway now being constructed from the waters of Lake Ontario to this chain of internal Lakes; furnish additional reasons why the navigation connecting them should be perfected.

The second class of Trent Works viz: those required solely for the passing of timber, &c., comprises all the works of Slides and Booms at Heeley's Falls, Crow Bay Boom, Booms and Slides at the Middle Falls, Works at Fiddlers' Island, Boom at Seymour Bridge, Booms and Slides at Ranney's Falls, Percy Boom, excavation and other works at Eel Weir Shoal, Chisholm's Rapids, and Nine Mile Rapids. The annual expenditure on the whole of these, in 1853, was £2184 17s 5d., and the Revenue £1180 6s.

The undersigned are of opinion, that the whole of the works included under this 2nd head should be handed over to the respective Municipalities, or to such other Corporations as would be willing to take charge of them; but that, in any case, public expenditure on them should cease.

Port Stanley.

The Piers are carried out to the full extent provided for, and the work of excavating the inner Basin is progressing. For further details, (see Report of Engineer, Apppendix, Letter G.)

Burlington Bay Canal.

Notwithstanding the settlement which has taken place in one of the Piers, as stated in the last Report, no obstruction to the navigation has occured during the past year.

From the increased dimensions of the Steam Vessels now in course of construction, and which are to ply through this Canal, it will be necessary to construct strong fenders at the ends of the Piers in the inner Bay, and a portion of the North West Pier, which has been affected by the ice, must be protected against being carried further into the Channel.

The Ferry Scow, by which the communication across the entrance maintained, received considerable damage by a storm, and during its repair, a good deal of inconvenience was suffered. The undersigned are of opinion that, as it will not be possible altogether to prevent a recurrence of such annoyance, unless a second Scow is kept on hand, and safely moored in a convenient position, one should be provided. The breadth of the Canal prevents the adoption of a Swing or other Bridge in one Span; and the large number of vessels now navigating it, forbids the placing of a centre Pier, which would be otherwise highly objectionable from the deposit in the channel which it would certainly create.

Some of the Captains of large Steamers on the Hamilton line, men of experience, and well acquainted with the passage through the Canal in bad weather, strongly advocate the extension of the South East Pier, in the Main Lake, for about 800 feet, giving it a slight inclination towards the northward, by which they contend that the entrance to the Canal would be made more easy and safe; and the undersigned are inclined to concur with them, as to the effects such extension would have.

Roads and Bridges.

On reference to the statement No. 2, of the report, it will be seen that the works of all the Roads and Bridges in Canada West, constructed at Public expense, and remaining under the control of this Department at the date of the last Report, have since been disposed of.

A similar course is to be adopted with regard to those in Canada East, and would have been carried out, but for the necessity of an alteration in the law, to render it legal. The matter is now in the hands of the Law Officers.

Piers below Quebec.

The two Piers on the North side of the River, viz: at Les Eboulements and Mal-Baie, are finished in a satisfactorily and workmanlike manner. On both of them, this Department received authority to incur some expenditure, (not originally contemplated,) towards rendering them more secure and convenient.

On the South side, the Pier at Berthier has been completed. That at L'Islet is considerably advanced. It has been carried out beyond the extent at first contracted for, and now terminates in a depth of 9½ feet water at low tide. The extensive shoals which exist for many miles at this part of the River, forbid a greater depth being had, unless by running out the Pier to such an extent as would endanger its safety. The addition of a cross head at the termination of this Pier, with a landing slip, is necessary; and the removal of a few boulders will render access to it safe and facile.

The work of the Piers at Pointe aux Orignaux, and at Rivière du Loup are far advanced, and it is hoped will be completed before winter.

These Piers also it has been found necessary to extend beyond what was originally provided for, steamers are already regularly established on the River, touching at these Piers, and the inhabitants of the respective localities are fully alive to the important tendency they will have towards opening up the country and facilitating the communication with this city. A considerable passenger trade and traffic in the productions of the country is already created, which no doubt, will increase rapidly, and in proportion to the facilities offered to it.

The works of the Rimouski Pier, after having made but very slow progress for a considerable time, have been transferred to the Contractor for the other Piers, and they are now proceeding satisfactorily.

As stated in the last Report, the undersigned are of opinion, that more Piers, besides those now built or in progress of construction, are necessary; some of which may be so situated as to combine the advantages of coaling depots and asylums for Atlantic vessels, and tug steamboats, with those of a more local character. The localities under consideration for these additional works are St. Michael, Bic, Mitis, and Anticosti.

Lights below Quebec.

Since the date of the last Report, this Department received authority to enter into contract, with Mr. Baby, for the erection of the following Light-Houses. One at Cap Rosier, one at the West point of Anticosti, one on Wood Island near the West end of the Strait of Belleisle, and one onBelleisle Island, at the eastern entrance of that Strait. Prior to the commencement of the works, the Engineer to the Department was sent down, with some of the most intelligent of the Pilots, in order to fix on the precise site for each; in which important duty, they had the further advantage of the opinions of Admiral Boxer and Captain Bayfield. The chief reasons which induced the undersigned to recommend that this course should be taken, were, the satisfactory manner in which Mr. Baby's previous contracts were performed; and the fact of his being the proprietor of the Tug line below Quebec, and having, therefore, the command of vessels at all times, for the transport of men, materials, provisions, &c., to those distant and uninhabited (with the exception of Cap Rosier) positions, is a guarantee, to a great extent, for the uninterrupted progress of the works.

A strong force of mechanics and laborers has been sent down, with a large amount of provisions, materials, &c., and every exertion will be made to get up the foundations well, and to have the houses for the keepers built before winter, so that those houses may serve for accommodation for the men, immediately on the breaking up of the ice next spring; by which means the towers may be completed as soon as the Lighting apparatus can be had. The latter is to be of the catadioptric description, (from the patentees in Paris,) now so much approved of and extensively adopted. For further details on these works see report of Engineer, appendix Letter H.

Public Buildings.

Under this head, the principal points upon which the undersigned have to touch, are,—first, the disastrous burning of the Parliament House in this City, as well as of the building which was in course of being fitted up for the temporary purpose of the Legislature, until provision had been made by that body for the necessary permanent buildings.

Great as the loss has been to the Province, it is gratifying to find that, from careful investigation into the causes of these fires, there would appear to be no grounds for believing them to be otherwise than purely accidental. In the arrangements made for the present Session of the Parliament, there was little room left for choice; and they have been governed by the closest economy compatible with the indispensable accommodation required.

The second point to which it is considered necessary to refer, is that connected with the contemplated Governor's Residence, Public Offices, and Parliament Buildings, in the City of Toronto, towards which the sum of £60,000 had been appropriated. When this amount was first named, the plans and estimates had not been prepared, nor had the great increase in the number of members been fixed on. Prior to proceeding with the buildings, the undersigned considered it their duty to procure from the Architect, and to lay before the Governor in Council, estimates shewing the full cost involved in the carrying out of these plans, and from the great excess of the estimates thus furnished over the appropriation, (nearly fourfold,) and the near approach of the Session, it was deemed expedient to submit the subject to, and await the decision of Parliament.

Since the date of the last Report, the new Post Offices in Toronto and Montreal have been completed, and that at Hamilton is in course of erection.

The new wing to the Montreal Gaol has been completed, and the means for the safe and healthful keeping of the prisoners have been materially increased thereby: but the undersigned again beg to repeat their recommendation for the building of the surrounding walls, and of the day-rooms so much required.

The works of the Montreal Court House have been retarded by the great difficulty of procuring laborers, and by the prevalence of disease; causes which have operated detrimentally during the past season on all the public works. All the works of joining, plastering, painting, &c., are contracted for, and every exertion is being made to render the Building available as soon as possible.

The Gaol of this City is, as stated in former Reports, almost totally devoid of classification, ventilation, airing-yards, work-rooms, &c., &c.; and is, of course, unsuitable for the purpose to which it is devoted. To the exertions and care of its proper officers is to be attributed solely its present cleanly and safe state.

The Court House has been materially improved, in several respects, by a moderate outlay, and will meet the requirements of the Bar, and of the Officers connected with the administration of justice, for some years to come.

Post Office, Quebec.

For this Building a suitable lot of ground has been purchased, but as full possession of it could not be had until very lately, the erection of the Building has been necessarily postponed, steps are now being taking to have the plans matured and the work contracted for so as to allow of the materials being prepared so soon as a suitable appropriation is made for the purpose.

Custom-House, Quebec.

A site has also been purchased for this Building, but it was limited by the insufficiency of the appropriation. The undersigned are o' opinion that the extent of it should be commensurate with the wants of this, the most important Port of Entry of Canada, and that in addition to the service connected with the Customs directly, it should afford accommodation to the Trinity House, Revenue Police, &c., &c., that it should have a frontage to the River and direct and facile approaches from the water, and that the lot should be of sufficient extent to admit of the erection of bonding warehouses, all of which can be had reasonably, immediately adjoining the lot already procured, the work was therefore postponed until a sufficient appropriation for these purposes should be made.

The erection of the second wing to the Marine Hospital has been contracted for at very low prices, and but little progress has yet been made with it. Some improvement has been made in the drainage, sewerage, &c., but much remains to be done to complete the premises as they ought to be. The enclosing wall and railing is nearly finished.

Upon the other Public Buildings little or no expenditure has taken place beyond the cost of ordinary repairs.

In the foregoing, the undersigned have endeavored to give as concise a view as possible of the state of the several works, and public Buildings entrusted to their charge; and they hope that, taken in connection with the several Reports, Statements &c., in the Appendix, it will be found to afford all the necessary information.

Since the date of the last Report, many highly important changes, as the undersigned believe likely, to affect the trade and prosperity of the Province more extensively, and beneficially, (if suitable provisions are duly made) have not only been proposed but are on the eve of being carried out. Reference is particularly made to the Reciprocity Treaty, and the opening of the St. Lawrence to our neighbors of the United States, but, in order that the full benefits may be had from these measures, and that the course of Trade, which it is in our power to secure, may not be diverted from those natural channels which should be the legitimate and certain sources of considerable revenue to us, works of no ordinary extent are indispensible,—amongst the foremost of which are the enlarging of the Welland Canal, or rather the giving to it a second tier of Locks, of increased dimensions, in such a course as may be found most advisable; and also the connecting of the waters of the St. Lawrence by Canal, with those of Lake Champlain. The undersigned do not consider it necessary to urge the importance of the latter again upon the attention of the Public, further, than referring to the last Report of this Department, pages 31 to 38 inclusive ; and by stating their opinion that, strong as the reasons then were for embarking in that work, they are infinitely enforced by the prospect of the results which may be had from the proposed Treaty and opening of the St. Lawrence. In accordance with the desire of the Legislature, a general Survey is now being made, the direction of which has been entrusted to Mr. Jervis, a gentleman of high standing in the States as an Engineer. The object of this Survey is to enable him to furnish a satisfactory report as to the termini of the proposed Canal, and the route it should take. As much local and interested feeling has been exhibited on these points, it was considered desirable to obtain the opinion of a gentleman not only of recognized ability and judgment, but also devoid of all bias or prejudice in the matter.

With regard to the Welland Canal, the great detention to vessels experienced latterly from its crowded state, sufficiently indicate the necessity for adding to its capability.

Ocean Steamers.

In the last report of this Department, submitted to the Legislature, it was stated that a contract, dated 13th August, 1853, had been entered into (subject to the approval of the Legislature), with a Liverpool Firm, for the establishment of a line of steamers between the Port of Liverpool and the Cities of Quebec and Montreal, during the season of navigating the St. Lawrence, and between the Port of Liverpool and Portland, during the winter.

By the terms of this contract, the firm adverted to convenanted to establish and maintain a regular line of large and powerful Screw Steamers, to ply between Liverpool and Quebec and Montreal once a fortnight during the season for navigating the river St. Lawrence, and once a month during the winter, between the Ports of Liverpool and Portland. Those steamers should be of not less than 1200 tons, Carpenters' measurement, and 300 horse power, and their dimension's, draft, and running speed should be as following :—

Lenght of Keel	230 feet.
Breadth	34 feet.
Depth moulded	19 feet.
Depth of hold	18 feet.
Draft of water, loaded	16 feet.
Draft of water with 13 days fuel consumed	13 feet 6 inches.
Draft of water with 13 days fuel consumed, and 300 tons cargo landed at Quebec	11 feet.

By the contract it was also provided that there should be furnished for this service not fewer than five good vessels of the power and capacity above mentioned, for the fortnightly line during the season of navigation of the river St. Lawrence, and not fewer than three similar vessels, during the winter season, for the monthly trips to Portland.

These steamers were to have accommodations for first and second class passengers, equal to those of any of the present Atlantic Screw steamers; as well as superior accommodation in the between decks, for emigrants and third class passengers.

The vessels were to be capable of stowing 1000 tons measurement of cargo, besides coals in bunkers, for 24 days consumption.

The passenger and freight rates were also particularly specified, and the time occupied by the steamers on the outward passage from England was not to exceed in a yearly average 14 days, and on the homeward passage 13 days.

The annual service between Liverpool and Quebec and Montreal, was to comprise 14 trips, one trip being understood to be from Liverpool and back; and the service between Liverpool and Portland was to comprise five trips, from Liverpool to Portland and back.

The steamers as described herein, were to be ready, and to commence their regular fortnightly trips, on or before the first of May, 1854, and a sufficient number of such vessels to be ready, and in fact to commence the monthly trips, in the Spring of the year 1853.

Several other conditions, which it is not necessary here to recapitulate, were embraced in the Contract, relative to the carrying of the mail, books, pamphlets, free distribution of them, exemption from the payment of light and other Provincial dues in the River St. Lawrence, &c.

The contract was to continue for seven years from the commencement of the service.

For the performance of the foregoing service, the Province of Canada was to pay the Contractors at the rate of £1238 1s. 11d. stg., for each fortnightly trip from Liverpool to Quebec and Montreal, and back to Liverpool, of which 14 such trips were to be made annually, as soon as the five steamers should be established as above stated ; and, for each monthly trip from Liverpool to Portland and back, the St. Lawrence and Atlantic Railway Co., and City of Portland, were to pay the sum of £336 6s. 8d. sterling.

It was further provided that in case the Contractors had not the required number of vessels built or ready, in the spring of the year 1853, to make the fortnightly trips, they bound and obliged themselves to have a sufficient number of vessels to make monthly trips between Liverpool and Quebec and Montreal, until the required number should be ready to establish the regular fortnightly line, which was not to be later than the opening of the navigation in the year 1854 ; and for such time as such monthly line should be continued, the Contractors were to be paid the sum of £1333 6s. 6d. per trip.

For the due fulfilment of the contract, the several partners were jointly and severally bound in the sum of £10,000 stg.

The undersigned have to express deep regret that the conditions of this contract have been carried out in no one particular, as will appear from the following.

The vessels were to be, of not less than 1200 tons measurement, 300 horse power, to perform the outward trip on an average in 14 days, and the homeward trip in 13 days.

Between Liverpool and Quebec and Montreal, they were bound, at least, to make monthly trips during the navigation of the St. Lawrence in the year 1853 : but, from the opening of the navigation in 1854 they were fully bound to be prepared in all respects to make their fortnightly trips between these Ports.

In 1853 the following vessels were sent out.

	Tons.	Horse Power.
The Genova	700	160.
The Lady Eglington	600	160.
The Sarah Sands	1200	150.

There were fully seven months of open and ordinary free navigation in 1853, and the contractors by their engagement should have made at least seven trips. There were but five made.

The average outward passage was to be 14 days, that of the homeward 13 days.

The *Genova* averaged 20 days out, 15 days home.

The *Lady Eglington* 14 days out, 12 days home.

The *Sarah Sands* 22 days out, 18 days home.

In the performance of the service to Portland, the contractors equally failed in the year 1853.

With regard to the rates of freight to which the Contractors are bound, on reference to their advertisements in the several newspapers it will be seen that they demand 80s. per ton, whereas the contract specifies that it shall not exceed 60s. : they therefore either abandon their contract, or act illegally in exacting 80s. per ton.

The undersigned have but little reason to hope that the service for this year will be much more satisfactorily performed than it has been during the preceding year; they are aware, that the number and class of vessels which the Contractors had fully bound themselves to have ready, on the opening of the navigation, has not yet been provided, although ample time has elapsed since the 15th of August, 1852, to have had them built. The *Cleopatra* left Liverpool for Quebec and Montreal on the 11th of April, and reached Quebec on the 24th of May. The quantity and the lateness of the ice in the Gulf has been presented to explain the late appearance of the *Cleopatra*; but, as early as the 10th May, a ship under sail had made the passage to Quebec, and on the 24th when the *Cleopatra* came into port, she found 50 sail already at anchor before her.

The next vessel of this line that left Liverpool this season was the *Ottawa*, of 910 tons and 200 horse-power, which cleared from Liverpool for Quebec on the 25th of April, and did not arrive at the latter city at all. This violation of the contract is thus explained:—that finding ice in the Gulf she had put into Portland, discharged her Quebec and Montreal cargo there, which was forwarded to its respective destinations by means of the Atlantic and St. Lawrence Railway to Montreal, and thence down the river to Quebec, and that she then took in a return cargo at Portland for Liverpool.

The *Charity* of 1007 tons, and 400 horse-power, was the next vessel on the line. She left Liverpool on the 10th of May, and arrived in Quebec on the 7th of June,—thus making the passage in 27 days. This vessel as well as the Cleopatra which arrived on the 24th of May, and was advertised to have sailed several days ago, is still in the St. Lawrence.

It is understood that the *Sarah Sands* left Liverpool for Quebec on the 25th of May so that she is now due here. The Contractors through their agents at Liverpool, had given assurance that this vessel against which public opinion was strongly expressed last year, should not again be placed on the liee.

Under the circumstances detailed in the foregoing, and deeply impressed with the importance of the establishment of a truly effective and direct line of steamers between Great Britain and this Colony, and also with the necessity of removing from the public mind the injurious impression and doubts as to the possibility of establishing such a line, which the course taken by the Contractors hitherto has tended strongly to create, the undersigned are of opinion that one of two courses must be adopted, namely: either to cancel the present contract if one really exists, or to call upon the Contractor, at once, to satisfy the Government fully, that they have made such arrangements as will henceforth insure, without further delay or disappointment, such number and class of vessels being placed on the line, as will be capable of performing the service in a manner that will meet the wants of the country, and the views of the Legislature in sanctioning the expenditure.

The undersigned are of opinion that, to meet these wants fully, and so that the anticipated benefits from direct steam communication between this Colony and England may be realised, it is necessary that the line should be a weekly one, during the season of navigation of the St. Lawrence. Such a line would draw to this route a traffic of great importance, extending through a vast tract of country from the far West of the American continent; and it would also tend importantly to the lowering of freight to and from Canada. It would be difficult, in fact, to define limits to the benefits which such a business would diffuse through the channels of Industry in this Country.

From the fact of several suitable first class Steam Vessels, owned by enterprising men in this Province, being now on the stocks, and well advanced, the undersigned are disposed to believe that a weekly line might be established without much delay, by not confining it to the parties connected with the present line; but it is to be observed that the Canadian Ocean Steamers are under the disadvantage of having opposed to them two other lines from this continent to Europe, each of which is heavly subsidized by its respective Government; and, of course, it would be necessary to give such encouragement to the former as would enable it successfully to compete with its rivals.

Tug-Boats on the St. Lawrence.

The insufficient manner in which the towing of vessels between Lachine and Kingston, was performed under the first contract, being loudly complained of, and the necessit, for making such arrangements as would insure the performance of this service more satisfactory, strongly urged, the undersigned, after advertising for tenders, to accept that of Mr. Maxwell; by whom, accordingly, the required number of vessels was placed on the respective stations.

In entering into this Contract, the undersigned availed themselves of the experience of the past, and endeavored to embody such conditions in it, as would secure its being carried out to the satisfaction of the Trade; but, after some time, finding strong dissatisfaction to exist still, and complaints made that those conditions were not fulfilled, it was considered indispensable to have an Officer appointed whose sole duty would be to look to the regular departures and arrivals of the Tug-Vessels; to see that they were suitably equipped; and, in all cases where the time specified was not duly kept, to make a return of the fine to which the Contractor was subjected therefor, under the terms of his contract. The amount of such fines, according to the Superintendent, is very great; and a copy of his return has been given to the Contractor, in order that he may have an opportunity of stating his reasons why the whole, or any portion, should not be levied, on receipt of which a decision will be come to.

Under this contract, the Department had the option of advancing to the Contractor a sum of money to enable him to build new boats of a more powerful and suitable class: but, taking into consideration the unsatisfactory performance of the service hitherto, and that the opening of the St. Lawrence to the Americans will so much increase the number of vessels to be towed, as to render the business of towing certain, extensive, and profitable, the undersigned do not deem it expedient to make the advance adverted to.

Rapids of the St. Lawrence.

Under this head, in the last report of this Department, it was stated that a further examination was then being made, and that, although not completed, it was so far advanced as to enable the Engineer of the Department to make an *ad interim* report, which was accompanied by an estimate, from which it appeared that the contemplated improvement could be had at a cost of £30,000. This sum was, accordingly, inserted in the general estimate, and appropriated.

From the very difficult and hazardous nature of the work, and the obvious impropriety of embarking in it, without some degree of certainty of having it performed within a reasonable approximation to the amount appropriated, the undersigned considered that the safest course to take, was, to advertise it, and call for tenders for the obtaining and marking out a channel such as was contemplated, (namely, one of 200 feet wide, and of a depth suitable to vessels drawing 10 feet water, throughout, from Prescott to Lachine), the tenders to state a bulk sum for which it was proposed to perform the work. The attention of Messrs. *Maillefert & Raasloff*, Submarine Engineers, was thus directed to the subject.

These gentlemen had acquired considerable celebrity by their services in the improvement of one of the channels to the Port of New York ; but, although anxious to embark in the project, they were not satisfied that sufficient data had yet been established to enable them to do so with prudence, or to shew what amount of work had to be performed, or the nature of it. Arrangements have, accordingly, been made with these parties, who are now engaged in a most minute and practical examination of the Rapids. From the charts that they have already prepared, much information on these important points has been obtained, and, when completed, their examination will determine the real amount of expenditure involved in the undertaking.

Should it end in those gentlemen undertaking the work, but little compensation for the survey is to be made to them, beyond their expenses. On the other hand, should the results of the examination shew that it would be injudicious to proceed further. or that other parties were selected to do the work, in either of those cases they are to be paid such sum for their professional services as may appear reasonable.

In consequence of the want of any Piers or Wharves from the head of the Côteau Rapids to the foot of the Cascades Rapids, at which steamers could be brought up and attached, it frequently happens that the mail and other boats are stopped at the Côteau, lest they should be caught by darkness in their descent. The points at which such piers are most wanted are, one at Beaudet's, on the main shore, at the foot of the Côteau Rapids, another at Rousseau's, about three quarters of a mile above the Cedars, a third at Borro Hays's bay, below the foot of the Cedars, and another some distance below the village of Caughnawaga in a bight about one mile above Lachine Rapids. It is proposed that these should be built this year.

The importance of every improvement, having for its object the rendering of the navigation from the Western Lakes to the sea safe and facile, is becoming every day more obviously paramount. As conducive to this highly desirable end, the expediency of entering into engagements to insure the advantage of tugging to such vessels as might require it, and to afford assistance to those in distress below Quebec, was represented by this Department and under authority therefor, a contract was made with Mr. Baby, who has accordingly had three vessels on this service during the season. Under the provisions of this contract, he is bound to have built and on the line by the first of August next, two other powerful vessels.

A system of continuous tugging is, therefore, now established from the Gulf to Kingston; which, with the large number of additional Light Houses either built or in course of construction, will materially tend to facilitate the navigation of the Gulf and River. If to these improvements may be added that of the Rapids, the increasing the capability of the Welland Canal, and the connecting the waters of the St. Lawrence with those of Lake Champlain, by a suitable Canal, as already recommended in the Report it appears to the undersigned certain, that this route must, beyond doubt, command its full and remunerative share of the present and vastly increasing trade from the West to the New England States, the West Indies, and Europe.

All the foregoing respectfully submitted. J. CHABOT,
Chief Commissioner.
HAMILTON H. KILLALY,
Assistant Commisssoner.

To the Appendix, accompanying this Report, is added a copy of the instructions furnished to Mr. Jervis in relation to the Survey of the St. Lawrence and Champlain Canal, dated 12th August last, I. Also a statement of the upward and downward movement in Tons on the St. Lawrence Canals up to 31st July, in the years 1853 and 1854 respectively, K. both these amounts were furnished after the Report was written.

STATEMENT No. 1.

Statement of the Works of Canada under the charge of the Department of Public Works, which yield Revenue, shewing the cost of the construction thereof, under that Department to 1st January, 1854, the Expenditure for the years 1852 and 1853, also the cost incurred for Repairs and Management.

WORKS.	Cost of construction to 1st January, 1854.			Expenditure in 1852, included iu foregoing column.			Expenditure in 1853, included in foregoing column.			Cost of Repairs and Management in 1852.			Cost of Repairs and Management in 1853.		
Canals.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Welland............	1019610	6	6	23688	3	3	10129	18	1	14200	13	4	21925	0	5
St. Lawrence.															
General Expenditure.	12485	11	6	1076	5	0	958	5	10	11160	4	3	11557	18	5
Williamsburg	262094	18	9	3812	2	4	5864	12	11	....			....		
Cornwall	100777	8	6	2918	16	11	3180	10	3	....			....		
Beauharnois.........	343451	18	9	5161	12	1	5948	6	11	....			....		
Lachine	460258	18	8	23610	15	4	38547	2	0	....			....		
Junction............	17557	11	1	12379	6	10	5178	4	3	....			....		
Chats	653	6	7	....			653	6	7	....			....		
Chambly	16863	6	3	....			....			2108	7	11	1412	0	8
St. Ours............	37808	6	3	1013	4	5	656	12	11	264	10	6	301	13	8
Burlington Bay......	50956	14	3	....			....			1836	16	0	8	2	6
St. Ann's	22762	15	2	38	16	1	....			125	6	10	189	15	3
Slides, &c.															
Ottawa..............	94371	14	11	5720	15	4	5320	18	2	2190	13	4	1553	19	10
Trent and Newcastle .	76760	9	7	700	0	0	1649	1	11	1935	12	6	2568	7	5
St. Maurice	23019	14	1	10326	2	8	12159	1	5	....			....		
Harbor.															
Port Stanley........	29094	4	10	3016	3	4	4952	8	10	....			....		
Bridges.															
Bytown	16612	3	11	....			....			....			....		
	2585139	4	7	93462	3	7	94693	10	1	33822	4	8	39516	18	9

STATEMENT No. 2.

STATEMENT of the Works of Canada, under the charge of the Department of Public Works, from which no Revenue is derived, shewing the Amount expended thereon by that Department during the years 1852 and 1853, and the total Amount expended to 1st January, 1854.

WORKS.	Amount expended previous to 1st January, 1852.			Amount expended during the year 1852.			Amount expended during the year 1853.			Total Amount.			How disposed of and when.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Public Buildings	10679	19	2	3134	16	0	3917	13	1	17732	8	3	
Toronto.													
Parliament House Government House, and Elmsley Villa	16563	2	0	522	15	0	410	15	5	17496	12	5	
Post Office	1719	7	4	1093	18	3	774	2	9	3587	8	4	
Montreal.													
Court House	4241	18	0	12642	3	6	8184	0	1	32067	11	7	
Gaol,	664	10		1420	1	6	1794	14	5	3879	5	11	
Monklands	11222	10	11	325	0	0	325	0	0	11872	10	11	
Post Office							1347	3	0	1347	3	0	
Quebec.													
Post Office							4008	14	1	4008	14	1	
Château St. Louis	1518	18	6	1720	2	6	105	14	11	3344	15	11	
St. Georges	1413	1	6	1276	1	8	220	8	5	2909	11	7	
Parliament Buildings	9569	8	9	16081	18	5	2116	11	1	27717	18	3	
Spencer Wood	4925	16	0	14360	8	5	4839	16	4	23616	0	9	
Marine Hospital	189	11	0	117	16	7	688	0	3	995	7	10	
Custom House							3000	0	0	3000	0	0	
Gaols and Court Houses.													
Aylmer	1918	9	4	3058	14	10	909	12	7	3886	16	9	
Kamouraska	2214	12	0							2214	12	0	
General Expenditure	7023	9	8	21	5	10				7044	15	1	
Quebec Court House				800	0	8	2823	15	4	3623	16	0	
Quebec Gaol				300	6	8	12	8	0	312	14	8	
St. Lawrence.													
Towage	4500	0	0				4100	0	0	8600	0	0	
Landing Piers	271	15	3	12333	2	1	61402	14	11	74007	12	3	
Emigration				158	10	0				158	10	0	
Sheds	33993	5	11							33993	5	11	
Grosse Isle	6020	8	1	905	6	5	332	5	1	7257	19	7	
Arbitration	18859	9	8	3704	15	9	9090	13	10	31654	19	3	
Surveys	1828	2	11	641	2	3	123	0	0	2592	5	2	
Removals.													
To Toronto	7510	5	7	36	9	2				7546	14	9	
To Quebec	8714	9	5	2436	18	9	8	15	0	11160	3	2	
Light Houses.													
Inland	12741	15	0	850	18	2	4444	13	9	18037	6	11	
Roads.													
Bradford and Barrie Bradford and Bond Head Bond Head and Barrie Barrie and Penetanguishine Cold Water Portage	— 14821	7	5				15	8	11	14821	7	5	Proclamation, 17 June, 1853.
Amherstburg and Sandwich	962	8	2							962	8	2	
L'Orignal and Bytown	5587	17	9	351	2	3				5939	0	0	

No. 2.—STATEMENT of the Works of Canada, &c.—(*Continued.*)

WORKS.	Amount expended previous to 1st January, 1852.			Amount expended during the year 1852.			Amount expended during the year 1853.			Total Amount.			How disposed of and when.
Roads.—Continued.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Bytown and Pembroke	144	10	3							144	10	3	Proclamation 17 June, 1853.
Prescott and Ottawa	400	0	0	482	13	6	100	0	0	982	13	6	
Kingston and Ottawa	1084	9	1	255	8	0	160	2	11	1500	0	0	
Peterboro' and Norwood	327	0	7							327	0	7	
Peterboro' and Lindsay	250	0	0							250	0	0	
Cornwall and L'Original	895	8	7							895	8	7	
Lancaster	2823	16	6							2823	16	6	
Notawasaga	995	8	11							1000	0	0	
Owen's Sound	5527	15	4							5527	15	4	
Tecumseth	1055	15	9							1055	15	9	
St. Athanase	10017	19	6							10017	19	6	
Stanstead	5782	0	6	105	17	0				5887	17	6	
Granby to Province Line	11177	7	8							11177	7	8	
Waterloo and Sherbrook	480	0	0							480	0	0	
Trent Slide and Drawbridge				1250	0	0				1250	0	0	
Arthabaska	15887	12	2	10	10	0				15898	2	2	
Gosford	11111	2	3							11111	2	3	
Kemp	158	1	0							158	1	0	
Kennebee	3255	10	8							3255	10	8	
Temiscouta	1032	14	7							1032	14	7	
Gaspé	25083	16	5							25803	16	5	
Des Caps	2826	9	0	673	11	0				3500	0	0	
Metis and Matanne	1588	14	2	448	9	1				2036	19	3	
Rondeau	2354	19	3							2343	19	3	do
Chatham and Amherstburg							53	13	11	53	13	11	
Bridges.													
Shannonville	300	0	0							300	0	0	do
Winchester	300	0	0							300	0	0	
Melbourne	5753	16	0	47	1	8	6	6	11	5807	4	7	
Jacques Cartier	4102	6	11				79	11	8	4181	18	7	
St. Maurice	17209	16	10				175	10	0	17385	6	10	
Ste. Anne de la Parade	6979	17	4							6979	17	4	
Batisean	7884	4	0							7884	4	0	
Châteauguay	1910	0	5							1910	0	5	
Nicolet	4484	16	11				1	13	6	4486	10	5	
Godfroi	1829	11	5							1829	11	5	
Becancour	1870	9	3							1870	9	3	
Riviere du Chêne	1646	18	9							1646	18	9	
Etchemin	1776	19	2							1776	19	2	
Bayonne	1257	8	8							1257	8	8	
Rock Island	Included in Road.												
Gananoque	1005	2	7							1005	2	7	do
Memphremagog	260	0	0							260	0	0	
Peterboro'													do
Rideau													
Chandière				1	9	8	1	1	7	2	11	3	
Miscellaneous.													
Lake St. Peter				2	1	7	200	15	0	202	16	7	
School of Navigation				150	0	0	832	9	4	982	9	4	
Water Police				118	7	6				118	7	6	
Sale of Public Works				71	2	11	7	5	10	78	8	9	
Atlantic Steamers				133	13	1				133	13	1	
Montreal & Kingston Railroad				1616	10	10	1564	19	1	3181	9	11	
Survey Sault Ste. Marie				414	3	2	140	3	0	554	6	2	

No. 2.—Statement of the Works of Canada, &c.—(*Continued.*)

WORKS.	Amount expended previous to 1st January, 1853.	Amount expended during the year 1852.	Amount expended during the year 1853.	Total Amount.	How disposed of and when.
Miscellaneous—(Continued.)	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Simcoe & Lake Huron Railroad	....	100 0 0	....	100 0 0	
Quebec Observatory.........	....	23 6 8	28 6 9	51 13 5	
Montreal High School	....	4500 0 0	80 0 0	4580 0 0	
Trent Bridge repairs........	....	5 0 0	....	5 0 0	
Geological Museum..........	....	....	380 18 10	380 18 10	
Shipping Master's Office.....	....	....	42 0 4	42 0 4	
Hamilton Post Office	....	....	2000 0 0	2000 0 0	
Boundary Survey between Canada and New Brunswick....................	....	....	3894 3 2	3894 3 2	
St. Lawrence to New Brunswick	....	....	809 3 9	809 3 9	
Coteau and Cornwall Road...	....	....	3206 19 4	3206 19 4	
Château Garden Wall	....	....	550 16 11	550 16 11	
Cornwall Canal Debentures ..	....	31 6 9	....	31 6 9	
Plans, Admiralty	....	....	100 0 0	100 0 0	
Repairs, Customs' Wharf	....	....	497 3 1	497 3 1	
Chambly Canal Claims	....	....	120 0 0	120 0 0	
	....	....	....	....	

No. 3.

STATEMENT of the Expenditure made by the Department of Public Works, during the years 1852 and 1853, on the Provincial Light Houses connected with the Inland Navigation.

No.	NAME OF LIGHT.	NAME OF KEEPER.	Expended in 1852.			Expended in 1853.		
			Salaries.	Supplies, &c.	Total.	Salaries.	Supplies, &c.	Total.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	Goderich	Thomas Brady	48 15 0		48 15 0	81 5 0	80 18 6	162 3 6
2	River Thames	Claude Cartier	65 0 0		65 0 0	65 0 0	77 15 8	142 15 8
3	Bois Blanc	James Hackett	87 10 0	22 10 0	110 0 0	46 5 0	74 1 6	120 6 6
4	Pelée Island	James Cumming	87 10 0		87 10 0	87 10 0	105 2 3	192 12 3
5	Long Point	Moses Newkird	87 10 0	117 1 0	204 11 0	85 0 0	85 13 3	170 13 3
6	Long Point Light Ship	Peter Baikie	168 15 0	22 17 6	191 12 6	135 0 0	66 18 6	201 18 6
7	Port Burwell	J. P. Bellairs	50 0 0		50 0 0	50 0 0	53 7 6	103 7 6
8	Port Stanley	Richard Smith	19 0 0	0 6 6	19 6 6	27 7 1		27 7 1
9	Mohawk Island	John Burgess	87 10 0	0 5 0	87 15 0	87 10 0	113 6 4	200 16 4
10	Port Colborne	James Fortier		137 11 6	137 11 6	43 6 8	103 7 9	146 14 5
11	Port Maitland	Charles D. Parnell				43 6 8	119 17 3	163 3 11
12	Port Dalhousie	Jonathan Woodall		64 13 0	64 13 0	43 6 8	121 16 0	165 2 8
13	Burlington Bay	John Davidson	100 0 0	39 2 6	139 2 6	100 0 0	10 91 0	206 1 0
14	Gibraltar Point	James Durnan	85 0 0	80 5 3	165 5 3	85 0 0	134 16 9	219 16 9
15	Gull Island	George Roddick	87 10 0	133 18 3	221 8 3	87 10 0	125 8 9	212 18 9
16	False Ducks	Joseph Swetman	102 10 0	160 12 3	263 2 3	102 10 0	147 18 3	250 8 3
17	Presqu' Isle	William Swetman	77 10 0	96 12 3	174 2 3	77 10 0	110 0 6	187 10 6
18	Point Peter	William A. Palin	85 0 0	84 17 0	169 17 0	85 0 0	66 4 0	151 4 0
19	Nine Mile Point	Thomas Sparham	87 10 0	26 2 6	113 12 6	87 10 0	126 12 9	214 2 9
20	Lancaster	Thomas Hill	52 10 0		52 10 0	52 10 0	22 18 9	75 8 9
21	Mackie's Point	A. McDonald	35 0 0	1 6 0	36 6 0	35 0 0	19 6 1	54 6 1
22	Cherry Island and Lancaster Floating Light	E. S. Johnson	85 0 0	48 5 1	133 5 1	85 0 0	80 3 9	165 3 0
23	Grosre Point	Peter Shannon	87 10 0	37 18 9	125 8 9	85 0 0	71 2 4	156 2 4
24	Beauharnois	Joseph Meloche	45 0 0	24 6 6	69 6 6	45 0 0	35 6 0	80 6 0
25	Châteauguay Shoals	Pière Laudré	37 10 0	59 8 9	96 18 9	71 11 0	24 19 6	106 4 6
26	Châteauguay, No. 3	Battice Carignon				9 14 0		
27	Lachine Pier and Floating Light	John Norton	75 0 0	10 13 6	85 13 6	75 0 0	32 0 6	107 0 6
28	Port Dover	William Fifield					76 16 9	76 16 9
	Management, Postage, Freight, Advertising, Travelling, &c.			169 12 11	169 12 11		231 13 4	231 13 4
			1744 0 0	1338 6 0	3082 6 0	1878 12 1	2413 13 1	4292 5 2

STATEMENT No. 4.

Statement of Amounts paid on Awards for Damages on each Work since date of last Report, also Amounts paid to Arbitrators or Commissioners for Services and Expenses up to 1st January, 1854.

	£	s.	d.	£	s.	d.
Welland Canal	3466	2	7			
Junction Canal	1521	0	0			
Beauharnois Canal	6387	0	4			
Burlington Bay Canal	900	0	0			
Lachine Canal	1976	4	1			
Williamsburg Canal	15	0	0			
River Trent	344	6	4			
Granby Road	327	0	0			
				14936	13	4
Amount paid to Wm. Hutton, Arbitrator	22	10	0			
do Wm. Woodruff, do	36	0	0			
do Joshua Bates, do	43	10	0			
do J. H. Connoly, Clerk	17	5	0			
do A. B. Sirois & J. Burroughs, Commissioners to settle Land Damages	454	8	2			
				573	13	2
				15510	6	6

N. B.—The above amounts are included in Statement N. 1. Welland, Lachine and Williamsburg Canals also in Statement No. 2, Arbitrations.

STATEMENT No. 5.

Statement shewing the Total Amount expended by the Department of Public Works, during the years 1852 and 1853, as detailed in the foregoing Statements, numbered 1, 2 and 3.

	Repairs and Maintainance.			Combustion.			Total Amount.		
	£	s.	d.	£	s.	d.	£	s.	d.
STATEMENT No. 1	72849	2	10	188155	13	8	261004	16	6
do 2				220392	10	1	220392	10	1
do 3	7374	11	2				7374	11	2
	81223	14	0	408548	3	9	488771	17	9
Amount received from the Hon. Receiver General, during the years 1852 and 1853, by Warrant issued on the certificates of Commissioners of Public Works							489809	16	4
*£							1037	18	7

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* The Vouchers for this Amount, in the hands of Paymasters, &c., had not been received on the 1st January, when the Accounts were made up.

STATEMENT No. 6.

Statement of the Water-power and Lands leased, or sold, on or in the vicinity of the several Canals or Public Slides, with the names of the Lessees, or Purchasers, Machinery adopted or proposed, Amounts of Sales or Rents.

CANALS.	LESSEES.	Description of Machinery, &c.	Runs of Mill-Stones.	Amount of Annual Rent.			Amonnt of Purchase Money.		
Welland	See Mr. Woodruff's Report, Appendix B. Statement No.4.			£	s.	d.	£	s.	d.
Williamsburg	Benjamin Chaffey	Grist and Flouring	6	61	10	0			
	William Elliot	Grist, Flouring & Carding	3	35	0	0			
	John Molson, Jr.	Grist and Flouring	4	85	0	0			
	Wm McLaughlin	Wharf		3	0	0			
	John Walsh	Do		11	0	0			
	K. McPherson	Do		3	0	0			
Cornwall	Andrew Elliot	Grist and Flouring	8	60	0	0			
	John Harvie	Do Do	4	30	0	0			
	A. E. Cadwell	Saw, &c		30	0	0			
	John Bell	Water-pipe to Brewery		2	10	0			
Beauharnois	William Miller	Paper Manufactory		70	10	0			
	D. B. Pearse	Wharf		5	0	0			
	Owen Lynch	Do		5	0	0			
	Léon Leduc	Do		5	0	0			
	Louis Bergevin	Do		2	10	0			
	Owen Lynch	Do		5	0	0			
Lachine	E. E. Gilbert	Foundry, &c.		322	10	0			
	James Hervey	Store		135	0	0			
	Thomas Peck	Nail and Spike		135	0	0			
	James McDougall	Flouring	4	107	10	0			
	Thorne & Heward	Store		216	0	0			
	Ira Gould	Flouring	12	108	0	0			
	T. D. Bigelow	Nail and Spike		107	10	0			
	John M. Holland.	Do Do		107	10	0			
	Wm. Lyman & Co	Oil and Plaster		107	10	0			
	Grant & Hall	Planing, &c		215	0	0			
	George & Wm. Tate	Dry Dock		250	0	0			
	Augustin Labbé	Marine Slip		25	0	0			
	Young & Gould	Sundries		420	0	0			
	N. Doré	Wharf		8	0	0			
	Frothingham Workman	Building Lot		164	0	0			
	W. P. Bartley	Foundry, &c.		282	0	0			
	Wm. Parkyn	Sundries		400	5	0			
	Geo. & Wm. Tate	Old Locks		110	0	0			
	John Ostell	Island		25	0	0			
	John Cowan	Lot of Land		8	0	0			
	Duncan Grant	Wharf		20	0	0			
	H. Jones & Co	Building Lot					260	0	0
	William Murray	Do					240	0	0
	John Young	Four Do					1140	0	0
	Hooker & Holton	Do Do					1140	0	0
	P. Turcotte	Lot of Land					868	0	0
	Wm. Rodden	Do Do		10	0	0			
Chambly	J. C. Pierse	Wharf		28	5	0			
Chats Rapids, Ottawa River	Wm. McLaughlin	Saw		20	0	0			
	John Egan	Do		20	0	0			
	George Pemberton	Do		20	0	0			
	Robert Conroy	Do		20	0	0			
	Peter Aylen	Do		20	0	0			

No. 6.—STATEMENT of the Water-power and Lands leased, &c.—(*Continued.*)

CANALS.	LESSEES.	Description of Machinery, &c.	Runs of Mill-Stones.	Amount of Annual Rent.	Amount of Purchase Money.
				£ s. d.	£ s. d.
Bytown	Philip Thomson	3 Hydraulic Lots		For the water sufficient to drive each run of Mill-Stones or other Machinery equivalent thereto, 5 0 0	430 0 0
	N. S. Blasdell	3 Do Do			340 0 0
	Lyman Perkins	1 Do Do			175 0 0
	J. J. Harris	6 Do Do			335 5 0
	S. H. Waggonez	Building Lot			11 5 0
	Alex. W. Powell	Do			133 1 0
	Nathaniel Burwash	Do			25 15 0
	Alex. W. Powell	Do			10 5 0
	Wm. Stubbs	Do			20 10 0
	Alex. W. Powell	Do			31 0 0
	James Skead	Do			44 0 0
	Nicholas Sparks	Do			63 5 0
River Trent,	James Cumming	Hydraulic Lot		5 0 0	

STATEMENT No. 7.

STATEMENT shewing Amounts appropriated for Public Works during the last Session of the Legislature, for which further sums are now required, together with the Balances of former appropriations then available for the Expenditure on each Works, the Amount thereof expended to 1st January, 1854, the Amounts yet unexpended, and sums now required towards the completion of these Works, as well as the sums required to cover over Expenditure under Orders in Council on other Works.

	Amount of Appropriation.	Balance former Appropriation.	Amount expended on appropriations and Orders in Council to 1st January, 1854.	Amount unexpended 1st January, 1854.	Amounts now required towards the completion of the Works & cover over expenditure on Orders in Council.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Welland Canal	34024 11 3	102 3 4	2422 2 8	31704 11 11	58339 16 10
St. Lawrence Canals, viz:	70692 16 6		58922 10 11	11770 5 7	
Williamsburg					11659 0 0
Cornwall					8950 0 0
Beauharnois					4250 0 0
Lachine					34500 0 0
Scugog Lock, &c.	5250 0 0		1999 1 11	3250 18 1	9500 0 0
Ottawa Works	5500 0 0		4580 18 5	969 1 7	10372 1 0
St. Maurice Works	14000 0 0		13563 16 3	436 3 9	21906 1 3
St. Ann's Lock	1000 0 0	1128 16 0		1128 16 0	2550 0 0
Light Houses, (Inland)	12000 0 0	1026 6 9	3329 14 3	9696 12 6	43600 0 0

No. 7.—STATEMENT shewing amounts appropriated for Public Works, during the last Session of the Legislature, &c.—(*Continued.*)

	Amount of Appropriation.	Balance former Appropriations.	Amount expended on appropriations and Orders in Council to 1st January, 1854	Amount unexpended 1st January, 1854.	Amoun s now quired towards the completion of the Works and cover over expenditure on Orders in Council, &c.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Light Houses, (below Quebec)...	7500 0 0			17500 0 0	10401 5 0
Landing Piers (below Quebec)..	6000 0 0	26516 6 9	58430 4 6		109583 0 0
St. Lawrence to New-Brunswick	25000 0 0		830 10 11	24169 18 1	
Arbitrations	17367 0 0	5645 19 8	8823 4 10	14189 18 10	25000 0 0
Post Office, Quebec	9000 0 0		4000 0 0	5000 0 0	10000 0 0
Quebec Custom House	13000 0 0		3000 0 0	10000 0 0	15000 0 0
Advertising Atlantic Steamers...					133 13 1
Advertising sale of Pub. Works.					78 8 9
Repairs of Custom House Wharf at Quebec.					497 3 1
Geological Museum					507 17 1
Towage on upper St. Lawrence..					9500 0 0
Purchase of Bonner's Property, Quebec.					5292 13 4
Provisions sent down to the Gulf to relieve Emigrant Ships					512 12 5
Improvements at Chateau St. Louis, Durham Terrace, Garden Wall, Railing and Fixtures, &c.					4764 1 8
Purchase of Spencer Wood					2582 14 7
Jacques Cartier Bridge					181 5 0
Shipping Master's office, Quebec					81 17 3
Surveys Upper and L. Canada..					1500 0 0
Water Police Building					155 17 6
Montreal Gaol					2500 0 0
Improvements St. Lawrence Rapids.					30000 0 0
Burlington Bay Canal					5650 0 0
Tug Boats below Quebec					7965 0 0
Cost incurred in consequence of fire at Parliament Buildings at Quebec, and fitting up sundry Buildings for the accommodation of the Legislature.					9632 2 9
Governor General from Montreal to Quebec and Staff, Guard of Honor to and from Quebec.					302 15 0
Repairs Temiscouata Road					1000 0 0
Protection of the Fisheries					1320 0 0
To settle old Accounts against Roads in Canada West.					203 13 11
Old Parliament Buildings, Quebec					10550 9 9
Public Buildings, Repair and Care, Rents, &c.					4000 0 0
Port Stanley Harbor					5000 0 0

Appendix A.

WELLAND CANAL OFFICE,

ST. CATHERINES, *January* 12, 1854.

SIR,—In compliance with the instructious communicated to me by your letter of the 27th ult., I have the honor to furnish you with a Report of all the works under my charge, they are divided into two heads; the first comprises all the matters connected with the NewWorks in progress, or remaining to be done, such as are embraced in the general completion of the Canal, the second relates to the old works for Superintendence, management and maintenance of it, &c., &c., &c.

Under these headings I herewith furnish you with statements shewing the several appropriations with the expenditures in the construction and maintenance of both the new and old works connected with the Canal for the past year, together with statements of water and other rents, Land Sales, Fines and Damages levied on vessels, with an estimate of the probable amount required to be appropriated to fully complete the work throughout, and increase the width of the Canal from Allanburgh to Port Colborne from 26 to 45 and 50 feet bottom (embracing Sections No. 15 to 27 inclusive) previous to Lake Erie being adopted as summit level.

The necessity of the undertaking and speedy completion of this enlargement is clearly shewn from the short supply of water furnished to the Canal, by the Grand River during the summer months for the past and preceding years, which supply must annually decrease as the Country from which its sources arise becomes cleared up. It therefore appears evident that the rapidly increasing trade of the Canal will very shortly exhaust the present Feeder, when the necessity for another must be sought, and as Lake Erie is the only available one, it is therefore strongly recommended that immediate preparation should be made for the completion of this enlargement as it will require a period of 4 years, with an equipment of six powerful Dredging Machines to complete the work.

The work progressing under Mr. French, Contractor, for bottoming Sections No. 17 to 26 inclusive, to suit Lake Erie level, is generally but for 26 feet bottom this width of Canal being only sufficient for the breadth of one vessel with lay-bys at intervals of half a mile for their meeting and passage, about 60,000 cubic yards remains to be taken out to finish the present Contract. On the completion of those Sections for 26 feet bottom width with the other Sections (viz: Nos. 15, 16 and 17 not yet undertaken) it does not appear advisable, or consistently practicable to lower the water (viz: 8 feet from Grand River summit to that of Lake Erie) until the bottom throughout is fully completed to the dimensions stated, as it is considered that a narrow Channel (of 26 feet bottom) cannot pass the latterly greatly increasing trade of the Canal without causing serious delays.

It is firmly believed on lowering the water that considerable Slides will take place, which it is impossible to prevent or provide against, the nature of the material being such that slips have frequently occurred, therefore it is deemed expedient to resort to the widening of the trunk of this portion of the Canal, in order there might be less interruption caused to the navigation, when such casualties occur as well as to facilitate the passage of vessels, by having a wide channel that they may meet and pass each other, and without this improvement it is certain that much delay will be caused by the contemplated arrangements,

Superintendence, management and maintenance of the Canal &c., &c., &c.

The Canal opened on the 1st day of April and closed on the 17th day of December, giving 261 days navigation, against 245 days in the previous year.

It has been during the past season more free than heretofore from obstructions caused by accidents, but one, that occurring on the 4th of April by the breaking of a gate at Lock No. 2, which was repaired, and the navigation resumed on the 6th.

But owing to the the increased trade and the enlarged class of vessels now in use, and the increased depth to which they are loaded, much delay occasionally takes place in making trips; this difficulty will next season be removed, as stop timbers with regulating Screws are being put into the Locks at Dalhousie and Allanburgh, to prevent vessels passing, drawing more than 9 feet 3 inches water, this being the greatest depth which they are admitted to pass until the raising of the Locks, Weirs and embankments are completed: for this undertaking instructions were given in September last, the progress made with procuring the materials and other portion of the work is very satisfactory, on its completion vessels will be enabled to pass through drawing 10 feet water. By thus raising the water between St. Catherines and Thorold the several mills situate on this portion of the Canal will be to some extent affected, as their Wheels and Flumes are generally too low, which it will be necessary to have raised.

During the past season a considerable amount has been expended in the construction and repairs of Lock Gates and Bridges, this work has been indispensably necessary in consequence of their failing; Contracts have been entered into for furnishing several sets of the former, and the consuruction of many of the latter during the suspension of navigation.

The raising and strengthening the embankments facing and protecting them with stone &c., &c., has been unavoidable during the past year, owing to the height at which the water has been usually kept, to facilitate the increased trade through the Canal.

The construction of a second Towing Path from Lock No. 4, to Hurst's Bridge above Thorold has been nearly completed and brought into use, and has been found of considerable service and saving of time in passing vessels through the Canal.

It is recommended that its extension for 2,000 feet above Hursts Bridge be authorized, the improvement will require an expenditure of £1,000.

The great damage done to the Port Maitland Piers by the storms on Lake Erie has been thoroughly repaired, in doing this it was found necessary to remove a considerable portion of the old materials from their decayed state, which has caused a considerable increase in the expenditure.

By referring to the accompanying Schedule No. 1 will be seen the several estimates voted by the Legislature with portions of such estimates expended, the works completed, and in progress and the balance remaining unexpended to the 1st of January 1854.

Schedule No. 2, shewing the estimated cost of completing the several works which it is proposed should be undertaken for the finishing of the Canal, and for which an appopriation is required.

Schedule No. 3, shews under different headings the several expenditures which have been necessarily incurred on the maintenance and management of the Canal for last year, together with the improvement and construction of several works authorized, such expenditure coming directly under the head of maintenance and management, has been charged against the Tolls, the sum thus expended amounts to £14,022 10s 8d.

Schedule No. 4, gives the mills erected, the annual revenue derived from the water power leased and the rents accruing from other property leased on the Canal, with the amount of rent paid in 1853, and the balance remaining due on the 1st of January 1854.

Schedule No. 5, shews the amount for Lands and other property sold, with the payment made thereon and the balance due on the 1st of January 1854.

Schedule No. 6, shews the number of vessels and other property passing through the Canal on which I have found it necessary to impose fines for committing breaches of the Canal regulations and damaging the works with the amount paid and remaining unpaid.

It appears necessary that I should add in conclusion, that a stringent regulation should be made compelling those using the Canal to proceed through it both by day and night with all possible dispatch, unless this course is adopted much additional confusion and delay will be experienced. The practice has been for the greater portion of the sailing vessels to proceed during the day, and the great part of the night which causes frequently a large number to acumulate about Locks. Heretofore lhe transit of vessels through the Canal, has been much retarded for the want of a sufficient number of teams and by the Tow Masters neglecting to tow at night.

To remove the serious detention occasioned thereby, a company is about forming to establish a line of Steam Tugs on the screw principle, for the purpose of towing vessels on the long levels, viz: between Port Colborne and Allanburgh also between Locks No. 1 and 2, with the tugging of vessels in and out of the Harbours, together with a sufficient number of horses, to be used at all hours in the conveyance of vessels between Allanburgh and Lock No. 2, with relays at several points.

Of the success and advantage to be derived from a proper establishment of this kind there can be but one opinion, it is my candid belief, that vessels by the use of such a line will make an additional trip in a season. I therefore recommend that the commissioners will allow the steam Tugs to pass on the Canal free of Tolls when used for that purpose.

The foregoing and accompanying statements affords I trust all the requisite information upon the works and expenditure entrusted to my charge.

I have the honor
to be Sir,
your obedient servant,

(Signed,) S. D. WOODRUFF.

P. S. The following shews the Revenue of the Canal for 1853.

Amount collected at Colborne				£42,136	7	0
do " Robinson				1,281	7	0
do " Maitland				480	11	6½
do " Dunnville				2,734	6	0
do " St. Catherines				943	0	4
do " Dalhousie				17,338	15	0
do " Chippawa Cut				88	7	10
Total from Tolls				£65,002	14	8½
Total Hydraulic Rents	£1865	18	1			
do Land Sales &c.,	2070	0	11			
do Fines and Damages	598	5	10	4,534	4	10
Total				£69,536	19	6½

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure made on the Welland Canal for Works in Progress, ending the 1st day of January, 1854.

Numbers.	WHAT WORKS.	Amount of Estimate voted 1853.			Total Amount expended to 1st January, 1853.			Amount expended during the year 1853.			Total Amount expended up to 1st Jan'y, 1854.			Remarks on Works done in 1853.
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
1	Cotton and Rowe, Port Dalhousie, Piers, Light Houses, Planking, &c.	3285	0	0										
2	Cotton and Rowe, Port Colborne, Piers, inner and outer Harbor, Light Houses, Planking, &c.	10668	15	6	13774	7	1½	....			13774	7	1½	
3	Samuel Zimmerman, raising Aqueduct and embankment.	3252	3	4	2742	10	0	....			2742	10	0	The completion of this Section will require an expenditure of £3,000 and should be put in hand.
4	Brown & McDonald, Guard Gates, Colborne	1707	2	6	1120	15	4	....			1120	15	4	
5	Asa D. Wood, Section 27 and Basin	6874	15	6	3087	18	6	....			3087	18	6	
6	Sections 17 to 27 both inclusive	19732	10	0	9890	0	0	2525	0	0	12415	0	0	Dredging operations in progress.
7 & 8	Swing Bridge and Lock Gates	3571	0	9	4914	6	0	....			4914	6	0	
9	Samuel Zimmerman, Aqueduct Lock, and raising do	4742	0	0	4329	18	0	....			4329	18	0	
10	Port Robinson, Lock embankment	500	0	0	87	16	0	....			87	16	0	
11	Timber for protection of Vessels in Rock cut	700	0	0	700	0	0	....			700	0	0	
12	Waste Weir at Aqueduct	2300	0	0	2857	10	3	....			2857	10	3	
13	Embankment at Junction, raising Dams, &c.	786	13	4	289	0	8	....			289	0	8	
14	Raising part of embankment on Section 23	100	0	0	100	0	0	....			100	0	0	
15	Cribs at Tail of Junction Lock	35	0	0	62	8	7	....			62	8	7	
16	Culvert at Brown's, ditch and drain to Chippewa	602	0	0	451	13	9	....			451	13	9	
17	Side walling Section 27 embankment, and facing bank	853	12	6	853	12	6	....			853	12	6	
18	Snubbing Posts	126	5	0	76	17	6	49	7	6	126	5	0	Completed.
19	Temporary Light House, Colborne	50	0	0	50	0	0	....			50	0	0	
20	Two Scows for Dredge	300	0	0	300	0	0	....			300	0	0	
21	Wall connecting Lock and Aqueduct protecting embankm't	1813	10	9	2739	18	0	....			2739	18	0	
22	Removing Walls at Aqueduct	412	0	0	387	1	3	....			387	1	3	
23	Culvert at Aqueduct	1310	0	0	1586	4	9	....			1586	4	9	
24	Covered drain at do., and approach to Bridge	337	0	0	538	16	10	....			538	16	10	
25	Removing Dam at Junction, and do. old Culvert and Road	600	0	0	583	19	0	....			583	19	0	
26	Admission Gates and regulating Weir for Mills	1600	0	0	1600	0	0	....			1600	0	0	
27	Guard Booms at Allanburgh's Locks	200	0	0	190	0	0	....			190	0	0	
28	Road from Aqueduct to Junction	140	0	0	112	10	0	....			112	10	0	
29	Road from Marlatt's Bridge	65	0	0	65	6	1	....			65	6	1	
30	Embankment and dredging away old Towpath	600	0	0	160	0	0	....			160	0	0	
	Superintendence and Contingencies	6000	0	0	6000	0	0	....			6000	0	0	
		72814	9	2	59602	10	1½	2574	7	6	62176	17	7½	

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure, &c.—(*Continued.*)

WHAT WORKS.	Amount of Estimate voted in 1851.	Total Amount expended to 1st Jan'y, 1853.	Amount expended during the year 1853.	Total Amount expended up to 1st January, 1854.	Remarks on Works done in 1853.
1851.	£ s. d,	£ s. d.	£ s. d.	£ s. d.	
Additional Booms and protection for Vessels in Rock cut	500 0 0	367 6 2	23 9 2	390 15 4	In progress, Timber delivered, and Work in hand.
Lock Houses	178 0 0	178 0 0	....	178 0 0	
Buoys at Colborne	150 0 0				
Recesses at Colborne, approaches to Pier, Dry Walling, &c.	331 7 6	473 18 0	....	473 18 0	
Raising and widening Banks between Thorold and Dunville	398 16 6	398 16 6	....	398 18 6	
Iron protection Railing and wooden Platform to Aqueduct	750 0 0	651 18 1	....	651 18 1	
Back ditches on Canal	600 0 0	227 7 10	493 17 10	721 5 8	Completed.
Mountain Hydraulic Road	2087 0 0	1700 0 0	175 0 0	1875 0 0	Do.
	4995 4 0	3997 6 7	692 7 0	4489 13 7	
Light Houses and House for Light Keepers, at Colborne	2000 0 0	2000 0 0	....	2000 0 0	
Guard Gates above Allanburgh Lock	6000 0 0	6481 17 10	....	6481 17 10	
Altering and strengthening Hydraulic Race	500 0 0	272 10 6	....	272 10 6	
Scowing Stones for face of Banks and Tow-path	1000 0 0	422 2 0	....	422 2 0	
Regulating Flume above Lock No. 11	774 0 0	703 10 11	....	703 10 11	
Moving Bridge at Dalhousie	280 0 0	324 16 4	....	324 16 4	
Altering Thorold Bridge	300 0 0	316 3 10	....	316 3 10	
Back Ditches on Feeder	500 0 0	225 6 7	162 10 0	387 16 7	
Providing Scows	680 0 0	486 0 0	....	486 0 0	
Providing Lying-by places for Vessels in short Heaches	1500 0 0	819 10 0	57 10 2	877 0 2	
Contingencies	1000 0 0	660 12 5	339 7 7	1000 0 0	
	14500 0 0	12712 10 5	559 7 9	13271 18 2	

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure, &c.—(*Continued.*)

WHAT WORKS.	Amount of Estimate voted in 1853.	Total Amount expended to 1st Jan'y, 1853.	Amount expended during the year 1853.	Total Amount expended up to 1st Jan'y, 1854.	Remarks on Works done in 1853.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Additional admission Weirs for Mills		228 16 10½	107 8 6	336 5 4½	All of these Weirs have been completed for Mills at present established.
Lock and Bridge Tenders' Houses		258 4 5	488 18 5	747 2 10	Office for Collector at Port Dalhousie, with accommodation for several of the Lock Tenders completed.
Collectors Offices and residences at Colborne and Dalhousie	34024 11 3				
Office at St. Catherines		....	3864 16 3	4164 16 3	
New Waste Weirs for Dunville Dam, and Bridge at Dunville		385 0 0	221 2 6	306 2 6	One Weir finished, the other not yet undertaken. Bridge at Dunville finished.
Award to Contractors and Land Damages		9141 8 5	1630 7 7	10771 16 0	
Superintendence and Contingencies		268 2 5	736 7 1	1004 9 6	
	34024 11 3	10281 12 1½	7049 0 4	17330 12 5½	
	126338 4 5	86598 19 3	10875 2 7	97469 1 10	£28,869 2s. 7d.,—Balance of several Appropriations to be expended.

(Signed,) S. D. WOODRUFF.

WELLAND CANAL OFFICE,
St. Catherines, January 12, 1854.

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure, &c.—(*Continued.*)

WHAT WORKS.	Amount of Estimate voted in 1851.	Total Amount expended to 1st Jan'y, 1853.	Amount expended during the year 1853.	Total Amount expended up to 1st January, 1854.	Remarks on Works done in 1853.
1851.	£ s. d,	£ s. d.	£ s. d.	£ s. d.	
Additional Booms and protection for Vessels in Rock cut	500 0 0	367 6 2	23 9 2	390 15 4	In progress, Timber delivered, and Work in hand.
Lock Houses	178 0 0	178 0 0	....	178 0 0	
Buoys at Colborne	150 0 0				
Recesses at Colborne, approaches to Pier, Dry Walling, &c.	331 7 6	473 18 0	....	473 18 0	
Raising and widening Banks between Thorold and Dunville	398 16 6	398 16 6	....	398 18 6	
Iron protection Railing and wooden Platform to Aqueduct	750 0 0	651 18 1	....	651 18 1	
Back ditches on Canal	600 0 0	227 7 10	493 17 10	721 5 8	Completed.
Mountain Hydraulic Road	2087 0 0	1700 0 0	175 0 0	1875 0 0	Do.
	4995 4 0	3997 6 7	692 7 0	4489 13 7	
Light Houses and House for Light Keepers, at Colborne	2000 0 0	2000 0 0	....	2000 0 0	
Guard Gates above Allanburgh Lock	6000 0 0	6481 17 10	....	6481 17 10	
Altering and strengthening Hydraulic Race	500 0 0	272 10 6	....	272 10 6	
Scowing Stones for face of Banks and Tow-path	1000 0 0	422 2 0	....	422 2 0	
Regulating Flume above Lock No. 11	774 0 0	703 10 11	....	703 10 11	
Moving Bridge at Dalhousie	280 0 0	324 16 4	....	324 16 4	
Altering Thorold Bridge	300 0 0	316 3 10	....	316 3 10	
Back Ditches on Feeder	500 0 0	225 6 7	162 10 0	387 16 7	
Providing Scows	680 0 0	486 0 0	....	486 0 0	
Providing Lying-by places for Vessels in short Heaches	1500 0 0	819 10 0	57 10 2	877 0 2	
Contingencies	1000 0 0	660 12 5	339 7 7	1000 0 0	
	14500 0 0	12712 10 5	559 7 9	13271 18 2	

No. 1.—SCHEDULE shewing the several Appropriations with the Expenditure, &c.—(*Continued.*)

WHAT WORKS.	Amount of Estimate voted in 1853.	Total Amount expended to 1st Jan'y, 1853.	Amount expended during the year 1853.	Total Amount expended up to 1st Jan'y, 1854.	Remarks on Works done in 1853.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Additional admission Weirs for Mills................	34024 11 3	228 16 10½	107 8 6	336 5 4½	All of these Weirs have been completed for Mills at present established.
Lock and Bridge Tenders' Houses....................		258 4 5	488 18 5	747 2 10	Office for Collector at Port Dalhousie, with accommodation for several of the Lock Tenders completed.
Collectors Offices and residences at Colborne and Dalhousie.. Office at St. Catherines..............................		....	3864 16 3	4164 16 3	
New Waste Weirs for Dunville Dam, and Bridge at Dunville...		385 0 0	221 2 6	306 2 6	One Weir finished, the other not yet undertaken. Bridge at Dunville finished.
Award to Contractors and Land Damages............		9141 8 5	1630 7 7	10771 16 0	
Superintendence and Contingencies..................		268 2 5	736 7 1	1004 9 6	
	34024 11 3	10281 12 1½	7049 0 4	17330 12 5½	
	126338 4 5	86593 19 3	10875 2 7	97469 1 10	£28,869 2s. 7d.,—Balance of several Appropriations to be expended.

(Signed,) S. D. WOODRUFF.

WELLAND CANAL OFFICE,
St. Catherines, January 12, 1854.

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No. 2 —SCHEDULE shewing the estimated Cost of completing the Welland Canal, for which an Appropriation is required.

Proposed Works.	Amount.	Amount to be expended in 1854.	Amount to be expended in 1855.	Amount to be expended in 1856.	Amount to be expended in 1857.	Amount to be expended in 1858.	REMARKS.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Basin below Lock at Port Colborne.......	18200 0 0	2200 0 0	10000 0 0	6000 0 0	....	....	This work is required to afford increased accommodation for Vessels passing through the Canal, and provide sufficient lay-by room in the Harbor.
Collectors' offices and residences...........	2250 0 0	750 0 0	1500 0 0	....	....	....	To provide accommodation for the Collectors at Ports Robinson, Maitland and Dunnville.
Finishing the deep cut to 50 feet bottom width, Sec. Nos. 15 and 16..................	27500 0 0	5000 0 0	7000 0 0	7000 0 0	4250 0 0	4250 0 0	This estimate is based upon a final measurement of the deep cut and settlement with Chas. H. French, in July 1848, whereby the abstract states that the work remaining to be done to complete it to 45 feet bottom throughout, is 112,000 c yds. To this is added 46,000 c. yds. of Slides ascertained by measurement, and the completion of the work from Allanburgh Lock to the deep cutting, with straightening line of Tow-path, &c., 22,000 c. yds., together with the deepening of Channel foot and widening to 50 feet bottom 120,000 c. yds.—Total, 300,000 c. yds.
Finishing Sec. Nos. 17, 18, 19, 20, 21, 23, 24, 25, 26. and Ramey's Bend to 50 feet bottom width. It is not proposed to do any work on Section 22, as it has been already finished to 45 feet bottom.	52354 3 0	5000 0 0	12500 0 0	12500 0 0	11177 1 6	11177 1 6	Sec. No. 17 requires to excavate for 50 ft. bottom 7064 c. yds., and deepening to 19 ft. below Grand River level. Do 18 do 50 do 9221 19 and 20 do 50 do 114621 and 21744 c. yds. hard pan. Sec. No. 21 do 50 do 26763 and 29694 do Do 23 do 50 do 81182 Do 24 do 50 do 70708 Do 25 do 50 do 79138 Do 26 and Bend do 50 do 93908 Total.................. 482600 c. yds., 51438 c. yds. hard pan. Ditching on Sections 19, 20, 23, 24, 25 and 26—30000 c. yds.
Raising Locks..........	4000 0 0	4000 0 0	....	....	....	....	To increase the depth of water in Canal to admit vessels to pass, drawing 10 feet.
Weigh Locks	17500 0 0	2500 0 0	10000 0 0	5000 0 0	....	....	Required for the purpose of checking the cargoes of Vessels.
Hydraulic Aqueduct.	7075 0 0	2000 0 0	5075 0 0	....	....	....	As per Report No. 1889, December 10, 1853—£1415, chargeable against Railroad Company.
Extension of Piers at Port Dalhousie......	3000 0 0	1500 0 0	1500 0 0	....	....	....	Required to be done to enlarge the Harbor.
Superintendence and Contingencies.......	9020 17 0	2000 0 0	1500 0 0	1500 0 0	510 8 6	510 8 6	
	140900 0 0	24950 0 0	49075 0 0	32000 0 0	15937 10 0	15937 10 0	

Section 17 all 45 feet bottom.
Do 8 45 do
Do 19 & 20 26 do
Do 21 about one-quarter, 45 do
Aqueduct Section all 26 feet bottom, upon which work is to be done.
Section 22 all 45 feet bottom.
Do 23 about one-seventh, 45 feet bottom.
Do 24 do one-third, 45 do
Do 25 all 26 feet bottom.
Do 26 26 do

Welland Canal Office,
St. Catherines, January 12, 1854.

(Signed,) S. D. WOODRUFF,

DETA the year 1853, together with the Expen

	Repairs Port Maitland Piers.	Repairs of Wall at Lock No. 2.	Raising Embankments for the purpose of increasing depth of water in Canal to admit the passage of vessels drawing 10 feet of water.	Raising waste Weirs for the purpose of increasing depth of water in Canal.
	13	14	15	16
	£ s. d.	£ s. d.	£ s. d.	£ s.
January	....	....	....	....
Februa	....	....	....	....
March .	....	....	....	....
April. .	....	....	16 10 0	....
May...	135 0 0	....	....	....
June...	210 0 0	....	....	....
July...	360 0 0	....	....	....
August	460 0 0	....	....	....
Septemb	185 0 0	....	65 8 2	....
October	125 0 0	41 7 6	129 15 0	....
Novemb	126 16 1	85 1 7	132 10 0	....
Decembe	....	167 18 4	91 1 8	62 10
	1601 16 1	294 7 5	435 4 5	62 10

....

....

Total Expenditure........

(Sign

SCHEDULE No. 4, shewing the annual Rents for Water Power and other property leased on the line of the Welland Canal, the annual Rent with Machinery established, the Rent for 1853 with the Arrears of Rent due to 1st January, 1853, the amount paid in 1853, and the Balance of Rent due on the 1st January, 1854.

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears of Rent due 1st Jany., 1853.	Amount paid Collector in 1853.	Balance due on 1st Jany., 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Port Dalhousie.	Robt. Laurie & Co.	1st Run Stone	15 0 0			
		2d and 3d do. £12 10s...	25 0 0			
		Corn Crusher	2 10 0			
		Ground Rent	5 0 0			
		Int. on cost of flume...	1 16 6			
			49 6 6	98 6 6	49 6 6	49 6 6
Do.	R. & J. Laurie ..	1st Run Stone	15 0 0			
		3 do. at £12 10s.	37 10 0			
		Ground Rent	5 0 0			
		Int. on cost of flume...	2 10 0			
			60 0 0	20 0 0	....	20 0 0
Do.	Reubin Morrison. now Jno. Brown.....	1 Saw	20 0 0			
		2 Circular at £4	8 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume...	1 5 0			
			34 5 0	68 10 0	34 5 0	34 5 0
Do.	Alexander Muir.	Floating Dock (use of water)	10 0 0			
		Ground Rent	7 10 0			
		Int. on Supn. Construction flume	1 10 0			
			19 0 0	14 5 0	....	14 5 0
Lock No. 2	Jno. Ranney	1st Run of Stone.	15 0 0			
		4 do. at £12 10s......	50 0 0			
			65 0 0	130 0 0	130 0 0	....
St. Catherines..	Water Power Cy.	Surplus water from Lock 11 to Lock No. No. 3	125 0 0	250 0 0	125 0 0	125 0 0
Do. ..	Calvin Phelps ..	6 Run of Stones......	37 10 0	37 10 0	37 10 0	....
Lock No. 5	Richard Collier .	1 Saw	20 0 0			
		3 Circular.... 1 Last factory 1 Turn'g Lathe } Equal to 2 Saws.	15 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume...	1 18 4			
			41 18 4	83 16 8	62 17 6	20 9 2
Lock No. 10 ...	Thomas Towers .	1st Run Stones	15 0 0			
		2d do.	12 10 0			
		Corn Crusher	2 10 0			
		Ground Rent	5 0 0			
			35 0 0	70 0 0	52 10 0	17 10 0

SCHEDULE No. 4.—(*Continued.*)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears of rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Lock No. 12...	Orson Phelp....	1 Upright Saw.......	20 0 0			
		1 Circular...........	4 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume....	2 0 0			
		£	31 0 0	38 15 0	23 5 0	15 10 0
Lock No. 15...	John Brown	1 Run Stone with crusher	15 0 0			
		Ground Rent	5 0 0			
		Additional Power	20 0 0			
		£	40 0 0	15 0 0	....	15 0 0
Lock No. 20...	W. B. Hendershot	1 Saw	20 0 0			
		3 do	15 0 0			
		3 do	15 0 0			
		1 Circular...........	4 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume....	1 5 0			
		£	60 5 0	54 1 8	....	*54 1 8
Lock No. 21...	Wm. Beatty....	1st Saw	20 0 0			
		2d do	15 0 0			
		3 Circulars..........	12 0 0			
		Ground Rent.........	5 0 0			
		Int. on cost of flume....	2 0 0			
		£	54 0 0	67 10 0	40 10 0	27 0 0
Lock No. 22...	Wm. Beatty	Wheel for grining bark, &c.	15 0 0			
		Int. on cost of flume....	0 18 0			
		£	15 18 0	23 17 0	15 18 0	7 19 0
Lock No. 23...	W. H. Ward....	2 Lathes, 2 Planing Machines and 3 Circular Saws	12 10 0	18 15 0	....	18 15 0
Lock No. 23 ...	W. H. Ward....	1 Saw	20 0 0			
		2 d0	15 0 0			
		Int. on cost of flume...	1 10 0			
			36 10 0	54 15 1	....	54 15 0
Do do	Do do	Wharf Lot	10 0 0	5 0 0	....	5 0 0
Do do	John Brown	Wharf Lot	10 0 0	5 0 0	....	5 0 0
Lock No. 24 ...	Jacob Keefer....	1 Run Stone.........	15 0 0			
		3 do at £12 10s	37 10 0			
		Int. on cost of flume...	3 0 0			
			55 10 0	151 0 0	151 0 0	....

* £10 deposited March 15, 1852, in hands of Collector.

SCHEDULE No. 4.—(*Continued.*)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears or Rent due 1st Jany., 1853.	Amount paid Collector in 1853.	Balance due on 1st Jany., 1854.
			£ s. d.			
Lock No. 24 ..	Brown & Ross...	1 Run of Stones	15 0 0			
		2 & 3 do at £12 10s ..	25 0 0			
		Ground Rent	5 0 0			
			45 0 0	67 10 0	35 0 0	32 0 0
Do do	Park & Co	1 Run of Stones	15 0 0			
		2 & 3 do	25 0 0			
			40 0 0	120 0 0	80 0 0	40 0 0
Lock No. 25....	A. Christie	1 Run of Stones	15 0 0			
		2 & 3 do	25 0 0			
			40 0 0	80 0 0	40 0 0	40 0 0
Do do	John Brown	1 Run Stones	15 0 0			
		Ground Rent	5 0 0			
			20 0 0	35 0 0	15 0 0	20 0 0
Allanburgh, West Side	Wright & Duncan	1st Run Stones	15 0 0			
		2nd do	12 10 0			
		Carding Machine	12 10 0			
		3rd Run Stone	12 10 0			
		Interest cost Flume ...	15 3 4			
			67 13 4	135 6 8	67 13 4	67 13 4
Do do	W. H. Merritt, Jr.	1 Saw	20 0 0			
		Machinery	15 0 0			
		Interest cost of Flume.	1 15 6			
			36 15 6	73 11 0	36 15 6	36 15 6
Do do	Abr. Bowman ..	Water equal to 1 Run Stone	15 0 0			
		Interest cost of Flume.	1 10 0			
			16 10 0	33 0 0	16 10 0	16 10 0
Allanburgh W Side........	Wm. Pennock...	Water equal to 1 Run Stone	15 0 0			
		Int. on cost of Flume..	1 10 0			
			16 10 0	24 15 0	24 15 0	....
Allanburgh East Side........	Tucker & Kenny Lessees......	Old Grist Mill and Saw Mill	250 0 0	437 10 0	187 10 0	250 0 0

SCHEDULE No. 4.—(*Continued.*)

Where Situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853 with arrears of Rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January. 1853.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Port Robinson .	D.McFarland and	1 Saw	20 0 0			
	John Leman..	1 Circular Saw and Machine Shop....	10 0 0			
		Int. on cost of flume ..	7 10 0			
			37 10 0	75 0 0	37 10 0	37 10 0
Do. .	D. McFarland... John P. Abbey &	Dry Dock Site and water.............	15 0 0			
	Jas. Abbey......	Int. on cost of flume ..	4 16 0			
			19 16 0	39 12 0	19 16 0	19 16 0
Do. .	Donaldson......	1 Run Stones.........	15 0 0			
	and	Ground and H. Rent ..	5 0 0			
	McFarland	Int. cost of flume.....	1 10 0			
			21 10 0	57 0 0	....	57 0 0
Do. .	Rob. Band & Co.	1 Run of Stones	15 0 0			
		2 and 3 do. at £12 10s..	25 0 0			
		Ground Rent of Mill..	5 0 0			
		Do of Store and Wharf.	5 0 0			
		Int. on cost of flume ..	1 10 0			
			51 10 0	83 0 0	83 0 0	....
Morrittville....	Dunlap & Seely.	1 Run Stones........	15 0 0			
		2 and 3 do	25 0 0			
		Machinery	12 10 0			
		Int. on cost of flume ..	1 10 0			
			54 0 0	108 0 0	54 0 0	54 0 0
Do.	Do. Do.	1 Saw	20 0 0			
		3 Circulars	12 0 0			
		Ground Rent	5 0 0			
		Int. on cost of flume ..	2 0 0			
			39 0 0	78 0 0	39 0 0	39 0 0
Do.	Do. Do.	1 Saw	20 0 0			
		2nd do..............	15 0 0			
		4 Circulars, at £4....	16 0 0			
		Int. on cost of flume ..	2 10 0			
			53 10 0	107 0 0	53 10 0	53 10 0
do	E. Seely	Old Aqueduct for Store House	5 0 0	5 0 0	....	5 0 0

SCHEDULE No. 4.—(*Continued.*)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853 with arrears of Rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st Jany., 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Merrittville....	Moses Cook	1 Run of Stones......	15 0 0			
		2 & 3 at £12 10s......	25 0 0			
		Ground Rent	5 0 0			
		Int. on cost of Flume .	3 0 0			
			48 0 0	96 0 0	48 0 0	48 0 0
Marshville.....	John Graybiel..	1 Run of Stones, 1 Saw & Ground Rent	40 0 0	40 0 0	40 0 0	
Broad Creek...	Lauchlan McCallum	1 Upright Saw.......	20 0 0			
		2 Circulars	8 0 0			
		Ground Rent	5 0 0			
		Int. on cost of Flume..	2 15 0			
			35 15 0	41 13 9	23 16 3	17 17 6
Port Maitland..	Inlack & Hicks .	1 Run of Stones......	15 0 0			
		2nd do. do.	12 10 0			
		Ground Rent	5 0 0			
		Int. on cost of Flume..	2 0 0			
			34 10 0	69 0 0	51 15 0	17 5 0
Dunnville	Jacob Turner...	1 Run of Stones	15 0 0			
		2nd do. do.	12 0 0			
		1 Saw	20 0 0			
		2 do..............	15 0 0			
		Ground Rent..	5 0 0			
			67 10 0			
		Less ⅓ until L. E. level is adopted.........	22 10 0			
			45 0 0	73 6 8	55 0 0	18 6 8
do	Samuel Darling.	1 Run of Stones......	15 0 0			
		2nd do. do.	12 10 0			
		Ground Rent	5 0 0			
			32 10 0			
		Less 3 until L.E. level.	10 16 8			
			21 13 4	43 6 8	21 13 4	21 13 4
do	Lewis J. Weatherly	3 Carding machine, 1 Fulling Mill, 1 Loom & Spinner, 2 Turning Lathes,	20 0 0			
		Less ⅓ until L.E. level.	6 13 4			
			13 6 8	26 13 4	13 6 8	13 6 8

SCHEDULE No. 4.—(*Continued.*)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853 with arrears of Rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1854.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Dunnville......	Henry Mittleberger.......	1 Saw................	20 0 0			
		Ground Rent........	5 0 0			
			25 0 0			
		Less ⅓ until L.E. level.	8 6 8			
			16 13 4			
		1 Circular added.....	2 13 4			
			19 6 8	29 13 4	20 0 0	9 13 4
Do.	Chisholm & Minon	1 Saw................	20 0 0			
		2 do.	15 0 0			
		3 Circular at £4......	12 0 0			
		Ground Rent........	5 0 0			
			52 0 0			
		Less 3 until L.E. level.	17 6 8			
			34 13 4	69 6 8	....	69 6 8
Do.	Hugh Boomer...	1 Run of Stones......	15 0 0			
		2nd & 3rd at £12 10s.	25 0 0			
		Ground Rent........	5 0 0			
			45 0 0			
		Less 3 until L. E. level	15 0 0			
			30 0 0	60 0 0	....	60 0 0
Do.	John Brown & W. H. Merritt, Jr.	1 Run of Stones with Cracker...........	20 0 0			
		Ground Rent........	5 0 0			
		Int. on cost of flume...	3 5 0			
			28 5 0	28 5 0	....	28 5 0
Haldimand....	John Oldfield & Alfred Nixon..	1 Saw..	20 0 0			
		2nd do.	15 0 0			
		1 Circular...........	4 0 0			
		Ground Rent........	5 0 0			
			44 0 0			
		Less ⅓ until L. E. level.	14 13 4			
			29 6 8	58 13 4	44 0 0	14 13 4
Do.	Cornelius Johnson	1 Saw....	20 0 0			
		Ground Rent........	5 0 0			
			25 0 0			
		Less ⅓ until L. E. level	8 6 8			
			15 13 4	33 6 8	16 13 4	16 13 4

SCHEDULE No. 4.—(*Continued.*)

Where situate.	Owners.	Machinery.	Annual Rent.	Rent for 1853, with arrears of Rent due 1st Jany., 1853.	Amount Paid Collector in 1853.	Balance due on 1st January, 1854.
			£ s. d.	£ s. d	£ s. d.	£ s. d.
Haldimand	Levi Brocklebank........	1 Run Stones........	15 0 0			
		Ground Rent........	5 0 0			
			20 0 0			
		Less ⅓ until L. E. level	6 13 4			
			13 6 8			
		2nd and 3rd Run of Stones	25 0 0			
			38 6 8	57 18 4	19 11 8	38 6 8
Do.	John Beatty and Robert Bond....	1 Run of Stones......	15 0 0			
		2nd do	12 10 0			
		Ground Rent........	5 0 0			
		Int. on cost of flume ..	4 16 0			
		£	37 6 0	36 12 6	....	*36 12 6
Total amount of annual Rent .... £			2079 0 4			
Total Rent due for 1853, with arrears due to 1st January,			1853....£	3529 8 10		
Total Rent paid Collector in 1853..................			....	.... £	1865 18 1	
Balance due on 1st January, 1854..................			....	....	.... £	1663 10 9

* £10 deposited with Collector Nov. 17, 1851.

(Signed,) JOHN CALLAGHAN,
Clerk.

(Signed,) S. D. WARDRIFF.

Welland Canal Office,
St. Catherines, 12th Jany., 1854.

SCHEDULE of Lands on the Welland Canal sold to sundry persons, with the 1852, the Amount with Interest paid to Collector in 1853, and the

NAMES OF PURCHASERS.	NO. OF THE LOTS.	WHERE SITUATE.	QUANTITY.	Amount of Sale.		
				£	s.	d.
William B. Hendershot	11	Village of Port Robinson	¼ acre	12	10	0
do	A. F. G.	Park Lots do	11¼ acres	83	16	10
do	11, 28, 29, 32, 34, 35 and 36.	Village of do East Side.	3¼ do	87	17	6
do	2, 4, 5	Village of Allanburgh	1 acre 1 rod 28 p.	38	0	0
		Interest to 1st January,	1854	19	15	8
Charles Stuart	Island	Village of Port Robinson	1 acre	25	0	0
do	18, 19, 20, 30, 31, 33, 38 and 39.	do do	3 do	86	10	0
do	Old Barracks.	do do		15	0	0
		Interest in full		9	16	7
Dilly Coleman	21, 16 and 24.	Village of Port Robinson	1½ acre	50	0	0
do	213	Near do part Marsh	20 acres	50	0	0
		Interest to 1st January,	1854	8	10	7
John Coulter	H. S.	Near Port Robinson	8 acres 1 rod	47	3	9
do	M.	Deep Cut, West Side	15 acres 2 rods	58	2	6
		Interest to 1st January,	1854	8	19	5
George Jordan	B. J.	Park Lots near Port Robinson.	17 acres 1 rod 25 p.	127	10	9
		Interest to 1st January,	1854	11	16	10
James Griffiths	C. D. E.	Near Port Robinson	13 acres 1 rod 27 p.	102	5	0
		Interest in full		7	13	4
Patrick Finlay	22, 23 and 24.	Allanburgh Hotel and Barns.	¾ acre	204	0	0
do	19	Village of Allanburgh	⅕ acre	8	15	0
		Interest to 1st January,	1854	20	14	10
John Brown	23	Village of Port Robinson	⅕ acre	50	0	0
do	3 and 4	Near Thorold	18 acres 0 rod 21 p.	153	10	9
Richard Campbell	Park Lot	Near Allanburgh	3 acres 2 rods 2 p.			
William Bouck	2 and 4	Near Thorold	21 acres 1 rod 20 p.	125	16	8
		Interest to 1st January,	1854	10	14	8
Owen Clifford	Part of Lot No. 12.	9th Concession Grantham	½ acre	5	0	0
Fredrick Holmes	Part of Lot No. 26.	7th Concession Crowland.	71 acres 1 rod 10 p.	178	5	0
		Interest in full		14	7	11
James R. Benson	On behalf of	Company for Hydraulic Lots below Thorold.	211 acres 1 r. 17 p.	2113	11	3
		Interest to 1st January,	1854	120	16	3

No. 5.

Amount of Sales and Amount with Interest paid thereon, to 31st December, Balances due on 1st January, 1854, with Interest included.

Amount of Sale with Interest charged to 1st January, 1854.	Amount with Interest paid to 31st December, 1852.	Amount with Interest paid Collector in 1853.	Balance due with Interest to 1st January, 1854.	Remarks.
£ s. d.	£ s. d.	£ s. d.	£ s. d.	
242 0 0	121 2 1	63 17 9	57 0 2	£1 9s. 1d. Interest included in balance due to 1st January, 1854.
136 6 7	63 15 0	72 11 7	....	In full.
108 10 7	54 10 0	28 0 0	26 0 7	£1 0s. 7d. Interest included in balance due on 1st January, 1854.
114 5 8	57 7 9	29 8 10	27 9 1	£1 2s. 4d. Interest included in balance due on 1st January, 1854.
139 7 7	63 15 4	36 7 10	39 4 5	£1 11s. 11d. Interest included in balance to 1st January, 1854.
109 18 4	55 14 6	54 3 4	....	In full.
233 9 10	118 6 9	63 3 4	51 19 9	£0 7s. 9d. Interest included in balance due on 1st January, 1854.
203 10 9	....	....	203 10 9	To be arranged on settlement of his claim for lands taken.
....	....	....	....	Forfeited.
136 11 4	68 11 7	35 4 8	32 15 1	£1 5s. 11d. Interest included in balance due on 1st January, 1854.
5 0 0	....	5 0 0	....	In full.
192 12 11	44 11 3	148 1 8	....	In full.
2234 7 6	502 14 3	....	1731 13 3	£120 16s. 3d. Interest on balance to 1st January, 1854.

SCHEDULE of Lands,

NAMES OF PURCHASERS.	NO. OF THE LOTS.	WHERE SITUATE.	QUANTITY.	Amount of Sale. £	s.	d.
Alex. Lattimore	Lots part 34, 35, 36 South.	3rd Concession Wainfleet	488 acres	244	0	0
		Interest to 1st January,	1854	7	2	0
Jonas Augustin	North half of Lots 2 and 3.	2nd Concession Wainfleet	200 acres	125	0	0
Lewis Sheckluna	Lot 21	4th Concession Crowland	100 acres	175	0	0
Municipality of the County of Welland.	Lands do Part of Lot 27	Wainfleet Humberston	10,796 acres 2,048 do 68 do	3228	0	0
				116	4	0
Edwd. Lee	Half of Lot 17. South half of North half.	3rd Concession Wainfleet	50 acres	31	5	0
Edwd. Henderson	North part of Lots 26, 27, and 28.	3rd Concession Wainfleet	416 acres	208	0	0
		Interest to 1st January,	1854	5	12	9
Honble. W. H. Merritt.	Dry Dock	At St. Catherines		625	0	0
		Interest from 1st July, '46,	to 1st Jany., '54	206	5	0
William Hamilton	North part of Lot 25.	3rd Concession Wainfleet	109 acres	54	10	0
		Interest in full		3	17	5
Henry Douthett	Old Dwelling	and Barn from off Lot 6 at	Colborne	25	0	0
Thos. Armstrong	2 Oil Barrels			0	10	0
Alex. Forbes	Lard, Oil, not	fit for use		2	10	0
			£	8341	10	0
		Interest	£	572	7	3

WELLAND CANAL OFFICE,
St. Catherines, 12th January, 1854.

No. 5.

&c.—(*Continued.*)

Amount of Sale with Interest charged to 1st January, 1854.			Amount with Interest paid to 31st December, 1852.			Amount with Interest paid Collector in 1853.			Balance due with Interest to 1st January, 1854.			REMARKS.
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
251	2	0	....			75	0	0	176	2	0	£7 2s. included in balance to 1st January, 1854. Bond and Mortgage taken for balance on five instalments, with Interest from 18th April, 1853.
125	0	0	....			125	0	0	....			In full.
175	0	0	....			175	0	0	....			In full.
3344	4	0	....			322	16	0	3021	8	0	£116 4s. Interest, to 1st January, 1854, included in balance.
31	5	0	....			31	5	0	....			In full.
213	12	9	....			62	8	0	151	4	9	£5 12s. 9d. Interest to 1st January, 1854, included in balance. Bond and Mortgage taken in four annual instalments for balance with Interest from 6th May.
831	5	0	....			656	5	0	....			
58	7	6	....			58	7	6	....			In full.
25	0	0	....			25	0	0	....			
0	10	0	....			0	10	0	....			
2	10	0	....			2	10	0	....			
£8913	17	3	1150	8	6	2070	0	11	5693	7	10	

(Signed,) JOHN CALLAGHER,
Clerk.

(Signed,) S. D. WOODRUFF.

SCHEDULE No. 6.

Statement shewing first the Vessels whose Fines and Damages were unpaid on 1st January, 1853, and secondly the Vessels and other property passing through the Canal, with the amounts levied thereon in 1853, and paid in to the Collector, and the Balance due on 1st January, 1854.

Date.	Description.	Name.	Amount of Fine Levied.	Amount of Damage Levied.	Amount paid Collector in 1853.	Balance due on 1st Jany., 1854.	
			£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1848.	Schooner	Racheal		311 18 8		311 18 8	Arranged by Department Letter, 5th July, 1853.
1850.							
Dec. 3.	Do	Jas. Ward		1 5 0		1 5 0	
" "	Brig	Liverpool		328 10 0	160 6 5		
1851.							
May 21.	Propeller	James Ward		10 0 0		10 0 0	
1852.							
Augt. 18.	Schooner	Halton		2 15 0		2 15 0	
Sept. 7.	Do	Pomona		0 15 0	0 15 0		
" "	Do	Chesapeak		3 0 0		3 0 0	
" "	Steamer	Reindeer		1 5 0	1 5 0		
" 30.	Do	Western Miller		0 15 0	0 15 0		
Oct. 13.	Propeller	Vermont		12 10 0	12 10 0		
" 22.	Schooner	Boston		1 10 0		1 10 0	
Nov. 3.	Do	West Chester		2 10 0	2 10 0		
" 8.	Do	Sultan		1 10 0		1 10 0	Arranged by Department Letter, 28th June, 1853.
" 30.	Brig	Superior		10 0 0	10 0 0		
Dec. 4.	Do	New Haven		1 0 0	1 0 0		
" 6.	Schooner	Pomona		1 5 0	1 5 0		
1853.							
April 4.	Do	Queen of the West		150 0 0	150 0 0		
" 9.	Raft	Saw Logs		5 0 0	5 0 0		
" 12.	Schooner	Pomona		2 10 0	2 10 0		
" 13.	Do	Josephine	2 10 0		2 10 0		
" 13.	Do	Minesata	2 10 0		2 10 0		
" 13.	Do	Armeda	2 10 0		2 10 0		
" 14.	Do	John E. Hunt	2 10 0			2 10 0	
" 15.	Do	Shakspear		2 10 0	2 10 0		
" 20.	Do	Jenna	2 10 0		2 10 0		
" 22.	Do	Cygnet		3 15 0	3 15 0		
" 23.	Do	Christina		1 15 0	1 15 0		
" 27.	Do	Manchester		5 0 0	5 0 0		
" 28.	Do	Columbia		1 15 0	1 15 0		
" 29.	Do	Ontario		1 10 0	1 10 0		
May 6.	Do	J. C. Riggs	2 10 0		2 10 0		
" "	Do	Albany		2 10 0	2 10 0		
" 10	Do	Eden Park		2 0 0	2 0 0		
" 13.	Propeller	Michigan	5 0 0		5 0 0		
" 16.	Do	Boston		2 0 0	2 0 0		
" 19.	Schooner	Spencer		2 5 0	2 5 0		
" 23	Brig	Iroquois		1 5 0	1 5 0		
" 28.	Schooner	Odd fellow		5 0 0	5 0 0		
" 29.	Do	Bellevidère	1 5 0			1 5 0	
June 6.	Do	Conductor		0 10 0	0 10 0		
" 9.	Do	Petril		15 0 0	15 0 0		
" 10.	Do	Globe		10 0 0		10 0 0	
" 11.	Do	Empire		1 0 0	1 0 0		
July 2.	Propeller	St. Nicholas		10 0 0	10 0 0		
" 4.	Schooner	T P. Hardy		2 10 0	2 10 0		
" "	Brig	New York	2 10 0		2 10 0		
" "	Schooner	Arvin Bronson		1 5 0	1 5 0		
" 8.	Raft	Cook & Calvin		1 17 6	1 17 6		
" 11.	Schooner	Northerner		2 0 0	2 0 0		
" 23.	Do	Mary		1 10 0	1 10 0		
" 26.	Do	Pomona		2 0 0	2 0 0		

SCHEDULE No. 6.—(*Continued.*)

Date.	Description.	Name.	Amount of Fine Levied.	Amount of Damage Levied.	Amount paid Collector in 1853.	Balance due on 1s Jany., 1854.
1853.			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Augt. 12.	Raft	Jno. Ferguson ...	1 0 0	....	1 0 0	....
July 8.	Propeller .	Wisconsin	....	25 0 0	25 0 0	....
Augt. 18.	Do .	Young America..	....	3 15 0	3 15 0	....
" 1.	Schooner .	John Irwin	....	3 15 0	3 15 0	....
Sept. 2.	Scow	Western	....	8 0 0	8 0 0	....
" " .	Schooner ..	Empress	5 0 0	....	5 0 0	....
" 17.	Do .	Caroline Marsh ..	....	1 0 0	....	1 0 0
" 24.	Do .	Georgeanna	....	5 0 0	5 0 0	....
" " .	Do .	Superior	....	3 0 0	3 0 0	....
" " .	Propeller .	Northern Michigan	....	6 5 0	6 5 0	....
" 27.	Brig	New York.......	1 5 0	....	1 5 0	....
" 21.	Schooner .	Gipsey.........	....	2 10 0	2 10 0	....
Oct. 4.	Propeller .	Cleveland	2 10 0	....	2 10 0	....
" 9.	Schooner .	Wm. Penn	2 10 0	....	2 10 0	....
" 11.	Steamer ..	Ranger	1 5 0	....	1 5 0	....
" " .	Schooner .	Coleman	1 5 0	....	1 5 0	....
" " .	Do .	Ospray	....	1 10 0	....	1 10 0
" 15.	Do .	Peerless	....	7 10 0	7 10 0	....
" 17.	Raft R. R. Tim.....	A. Fennie, two £5.	10 0 0	12 9 5	22 9 5	....
" 18.	Schooner .	John Irwin	2 10 0	....	2 10 0	....
" 27.	Do .	Oriental	....	0 10 0	0 10 0	....
" 31.	Propeller .	Dayton	....	2 10 0	....	2 10 0
Nov. 1.	Schooner .	Merrimack	....	2 0 0	2 0 0	....
" " .	Propeller .	Granite State....	....	3 15 0	3 15 0	....
" " .	Schooner .	Robt. Wood	5 0 0	....	....	5 0 0
" 10.	Brig	Neudeus	....	2 0 0	....	2 0 0
" 11.	Schooner .	Traveller	....	2 0 0	2 0 0	....
" 12.	Do .	Emblem	....	3 15 0	....	3 15 0
" 15.	Do .	Jane Ann Marsh..	....	1 5 0	....	1 5 0
" 21.	Raft	J. McDonald.....	10 0 0	9 12 6	19 12 6	....
Dec. 1.	Do .	E. Gifford.......	10 0 0	4 0 0	14 0 0	....
" " .	Do .	J. McDonald.....	15 0 0	14 15 4	....	29 15 4
		£	96 0 0	1042 13 5	576 0 10	392 9 0
Less Amount of Damages reduced by Department Letter of 5th July on Brig Liverpool.....................			....	168 3 7	....	....
		£	96 0 0	874 9 10	576 0 10	392 9 0
Collector at Port Robinson............			15 5 0	....	15 5 0	....
Do Dunnville			5 0 0	....	5 0 0	....
		£	116 5 0	874 9 10	598 5 10	392 9 0

(Signed,) S. D. WOODRUFF.

Welland Canal Office,
St. Catherines, 12th January, 1854.

APPENDIX B.

BYTOWN, January, 1854.

SIR,—I have the honor to transmit to the Department in accordance with instructions, my Annual Report of the Works under my charge, shewing a detailed statement of the Expenditure on each during the last year—also works now in progress—the amounts expended on them, and the amount that it will acquire to complete them—also a Schedule shewing the different certificates granted, names, dates, and amounts, the bills for chains, ropes and other materials being attached to the certificates as vouchers.

I beg also to remark upon the condition of the Ottawa, Madawaska and Gataneau works as follows, viz :—

Joachim Slides.

The lower or long Slide built by Gerard Neagle, begins to shew marks of decay but I think will stand safely through next season ; the foundation and floor are good. Removing the side posts, and replacing them with side piers filled with stones would make the slide permanent; this I would recommend to be done next season.

Calumet Slide.

The side posts of the long Slide have commenced to rot, but I think will do next year's business, and I would recommend that next season the posts be removed and replaced by side Piers. The foundation of this Slide is good, the floor plank is of white oak, and in good condition.

Mountain Slide.

This Slide is very sound ; floor plank of White Oak and in good condition.

Portage du Fort Slide.

These works are in good repair being all nearly new.

Chats Slide.

This Slide is in good working order ; the floor planks are getting worn thin, but it will last for next year's business and after the season is over they will require to be removed.

Chaudiere Slides, Bytown.

Are all in good condition.

Hull Slides.

The Upper Long Slide is in good order; the Lower Slide is under contract for repairs. The facing up of the Long Guard Pier at the head of the Long Slide proves to be a great improvement; the contractor has made an excellent job of it, and the slide will, in consequence, be furnished with sufficient water at all seasons.

Gatineau Works.

After the present contract is completed, I am satisfied that these works will be equal to any immergency likely to occur on that River.

Madawaska.

The Slide at the High Falls is built on very high frame work, and begins to shew some marks of decay. I have examined it closely and do not think it will require any repairs for some time. The new works on the Madawaska River consist of—

The Dam and Slide at Arnprior, which are nearly completed.
Two New Dams at Flat Rapids, now completed.
Booms not commenced, but will be as soon as the ice will answer to work upon.
The New Retaining Booms at the mouth of the Madawaska.
The New Boom at Head of Flat Rapids.

The New Boom at Head of Long Rapids.
The New Boom at Head of Caleboga Rapids.
Repairing Main Guide Boom at High Falls.
Side Dam in Long Rapids.

Bridges.

The Union Suspension Bridge, Bytown, has been painted this season, and is in good condition; and, with the new line of Bridges just completed at the Chaudière Falls, the communication between Bytown and Hull is now safe and complete.

I have the honor to be, Sir,
Your most obedient humble servant,

HORACE MERRILL,
Supr. Ottawa Works.

SCHEDULE shewing Certificates granted from January, 1853, to January, 1854.

1853.		£	s.	d.
Jany. 19	William Richardson	164	3	2
" "	Do do	186	19	9
March 2	Messrs. McDonald & Cass.	55	11	4
" 5	Andrew Johnstone	49	16	3
" 12	Wm. Richardson	193	15	10
" 16	Jno. A. Snow	22	2	0
" "	N. Burwash	80	18	2
" "	Do do	52	15	0
" 21	Messrs. McDonald & Cass.	65	13	3
" "	Edward Dufton	77	12	2
" 29	N. Burwash	104	2	6
" "	Do do	100	18	9
April 2	Edward Dufton	40	5	5
" 8	Wm. Richardson	217	15	1
" 11	N. Burwash	68	15	0
" 15	Edward Prow	24	17	6
" "	Geo. Hay	23	7	6
" 16	Jno. A. Suow	6	19	0
" 26	N. Burwash	176	14	7
" 28	Do do	65	16	4
" "	Do do	61	12	6
" 29	Do do	140	8	10
May 7	Don'd. Kennedy	123	11	10½
" "	Wm. Richardson	163	5	6½
" "	McDonald & Cass	127	10	0
" 13	N. S. Blasdell	65	19	6
" 14	Edward Dufton	52	4	7½
" 25	N. Burwash	178	7	11
" "	Do do	118	4	6
June 4	Do do	118	18	10½
" 8	McDonald & Cass	72	6	7
" 13	Wm. Richardson	201	19	11
July 5	McDonald & Cass	143	3	1
" 6	S. C. Kerr	25	0	0
" 8	Don'd. Kennedy	106	5	0
" "	Wm. Richardson	164	0	2
Augt. 1	Robert Thompson	18	12	10
" "	Alex. Stuart	60	0	0
" 12	Do do	81	8	9
" 21	John Donnelly	6	11	0
" 24	McDonald & Cass	80	2	3
1853.		£	s.	d.
Augt. 26	Don'd. Kennedy	158	5	4½
Sept. 2	John A. Snow	2	18	0
" 5	James Stern	27	12	7
" 6	McDonald & Cass	65	14	8
" 12	Don'd. Kennedy	334	6	0
" 22	N. Burwash	206	5	0
" 26	Amount of Pay list for Blasting Reef at Calumet	72	11	3¼
" "	N. Burwash	125	13	10½
Oct. 16	Alex. Stuart	22	10	0
" 15	N. Burwash	341	12	2
" 17	Wm. Richardson	64	2	11
" 18	Don'd. Kennedy	197	18	7½
" 28	McPherson & Crane	24	15	9
Nov. 1	Morgan Curry	3	15	0
" "	Wm. Mason	4	0	0
" 6	Edward McGillivray	21	11	3
" 21	Wm. McLeese	83	2	10
" "	Mr. Holt	2	0	0
Dec. 3	Lyman Perkins	6	17	9
" "	Andrew Johnstone	4	18	9
" "	Philip Thompson	2	16	0
" "	N. Burwash	10	16	11
" "	Robertson, Jones & Co.	39	2	8
" "	McDonald & Cass	350	4	3
" "	Workman & Griffin	231	0	10
" 2	Do do	16	19	11
1854.				
Jany. 5	N. Burwash	203	15	2
" "	Duncan & Stuart	471	1	4
" 17	Currie, Dickinson & Co.	3	19	6
" "	Tiberius Colton	7	11	0
" "	T. M. Blasdell	5	9	4
" "	Edward Prow	2	11	7
" "	Union Forwarding Co.	27	2	6
" "	N. S. Blasdell	1	1	0
" "	Do do	1	5	0
" "	George Hay	5	6	11
" "	Robert Bell	3	12	6
" "	Jas. B. Monk	11	0	0
" "	Clough & Campbell	100	6	0
	Total.......£	7149	6	1½

Approximate Estimate for unfinished works and new works on the Ottawa, Madawaska, Gatineau, Bytown and Pembroke Road, and Aylmer Court House and Gaol, in accordance with the approximations for the same—and former Estimates.

		£	s.	d.	£	s.	d.
Rocher Captain.....	Amount appropriated for Blasting Reef, work now in progress	....			250	0	0
Joachim	Guard Booms & Pier, £250; Blasting Reef at the foot of slide, £25	....			275	0	0
Calumet	New Bulk Head, new Bridge, new Stop Logs, &c., contract by McLeese	150	0	0			
	Less already expended	83	2	0			
					66	17	2
Mountain Slide ..	Lenghtening the Slide 150 feet, Blasting Black Rock and addition to Booms, contract by N. Burwash	....			710	0	0
Portage du Fort..	Deepening Channel at Head of Slide	....			250	0	0
Madawaska......	To complete the new work now under contract and some works about to be contracted for and completed this Winter, viz: A new retaining Boom and Piers at the mouth of the River—New Boom at head of Flat Rapids—New Boom at head of Long Rapids—New Boom at head of Calaboga Rapids—Repairs of Booms at head of High Falls—Side Dam at foot of Calaboga Rapids—New Slide and portion of Dam at Aran prior	3700	0	0			
	Less already expended	938	7	4			
					2761	12	8
Chats.....	Three large Anchors, Chains, Platform complete	150	0	0			
	Booms in Canal at head of Slide	50	0	0			
	Blasting Bocks in Channel	50	0	0			
					250	0	0
Chaudière Slide..	New Boom at head of Entrance Gate	....			60	0	0
Hull Slide.......	Repairing Lower Slide	....			100	0	0
Gatineau	Contract per N. Burwash—this work has never been estimated, but I was ordered by the Commissioners to make the works permanent for any emergency—and the repairs and improvements are as follows, viz: 6450 feet new Boom Timber at 8d	215	0	0			
	Oak Pickets and Dowels	17	10	0			
	Timber for the additional Pier, 6000 feet, at 8d	200	0	0			
	Stone filling for ditto, 720 yards, at 2s. 6d	90	0	0			
	Drawing out of the water the upper 1800 feet of the Boom & putting in large skein chains and new Pickets—Blacksmith.	75	0	0			
Expense of large chains paid for by the Board to be added	Bill for cutting large chains sent from Quebec*; Clevises for same; Cast Washers and Rivets for the Boom Pickets, &c.	50	0	0			
					647	10	0
Aylmer Court House and Gaol	For furniture, &c., contracts by Messrs. Clough & Campbell and James Ashfield, amounting to	280	0	0			
	Less already expended	100	6	0			
					179	14	0
Bytown and Pembroke Road.....	For the re-building burnt Bridges—Contract for two Bridges at Bolton's by McIntosh, and new Bridge at Beecher's Mills by Abel Beech—Appropriation £500, but something less will complete them	....			500	0	0
	Total	....		£	6050	13	10

(Signed,) HORACE MERRILL,
Supt. Ottawa Works.

APPENDIX C.

Public Works,
Quebec, 30*th March*, 1854.

Sir,—The preliminary Surveys to determine the most eligable route for the construction of a navigable channel through or around the barrier that separates Lakes Chaudière and Chats on the Ottawa river were completed in October last. Maps and Profiles shewing the position of the respective lines surveyed, the natural difficulties to be encountered on each, together with an estimate of the several routes were submitted to the Department by W. B. Gallwey, Esq., the gentleman under whose direction the surveys were conducted.

About the middle of November following, agreeable to instructions, I examined the locality with a view to a final decision being made on the arrangement of Lockage, the probability of obtaining the necessary materials for construction, together with such other available information as would aid in preparing plans, details, &c., prior to the work being placed under contract. The manner these instructions were carried out may be seen on reference to the Documents themselves and former letters relating to the subject.

In further compliance with your instructions of the 15th instant, I have the honor to submit the following general report.

1st.—Location of the proposed Canal, although the general question of location did not come within the range of my first instruction. I felt that justice to the Department and the public, demanded at least a cursory examination of the several lines proposed, inasmuch as considerable diversity of opinion seemed to exist as to the proper line that should be adopted, believing at the same time that in the location of works of a Provincial character the Public and not Local interest should be consulted, and knowing that the works in question, however, extensive, are in a measure but preliminary to those that must subsequently be undertaken in order to make the present contemplated improvement to any great extent available in opening up trade and commerce to and through that vast and important tract of Country drained by the Ottawa and its tributaries. The river itself is second only in point of size and importance to the St. Lawrence, which from its confluence with the latter westward, forms many extensive Lakes, separated from each other either by a perpendicular fall, or sudden descent in the surface and of course the bed of the River. These Rapids and Falls limit the navigable portion of the River, and from their nature present many obstacles to the formation of an artificial channel; all or any portion of which can, however, by judicious arrangements be overcome at an expense proportionate to the magnitude of the undertaking.

With a view to render the above more intelligible, the following brief statement is submitted, viz:—

	Miles.	Feet.	Feet.
Assuming the lower outlet below St. Anne's Locks as a datum line	0.00	0.00	0.00
Rise above Lock St. Anne's.........................	......	3.00	3.00
From St. Anne's to Carrillon Lake of two Mountains navigable	23	......	......
From Carillon to Blondeau (two Locks up and one down)	4½	8.00	11.00
Chute à Blondeau Canal (one Lock)	......	4.00	15.00

From the head of Blondeau to head of Grenville Canal (six Locks)................................	6½	35.00	50.00
From Grenville to Bytown (navigable)...............	58½	......	......
From the lower entrance of the Rideau Canal to Lake Chaudière....................................	6	63.00	113.00
From the foot of Lake Chaudière to Rapids des Chats navigable....................................	25	......	......
From the Falls Rapides des Chats to Chats Lake......	2⅚	49.80	162.80
Chats Lake navigable..............................	25	......	......
Total distance to foot of Chats Lake from St Anne's Lock..	151⅓	......	......

Lake Chaudière, if I am correctly informed, has a sufficient depth of water at all seasons for vessels of from 5½ to 6 feet draught, but during the greater part of the year the depth is much greater, the difference between high and low water being about 6 feet.

The Channel followed by the Steamboat that plys on the Lake lies otwards the north shore, at the upper end it connects with a large Bay that bears towards the north, which under the lee of several Islands and a projecting point of the main land forms a means of communication with the lower terminus of a Railway, that leads to the Steamboat landing on Lake Chats. The Country in the immediate vicinity of, and above the Bay is extremely rugged and mountainous.

Below the Falls and between the north and south shore are situated a number of Islands some of them of considerable area, the channel taken by the Steamboat when passing to the south shore is between the head of the Islands and the Falls.

Fitzroy village containing nearly 600 inhabitants is situated on the south side of the River a little below the Falls. The Wharf in front of the village is accessible by Steamboat through the channel above mentioned, except at certain seasons when much Lumber is passing down the Slide on the south side of Victoria Island, at these times the passage is said either to be dangerous or in a great measure obstructed.

The barrier between the Lakes consists generally of primative Limestone with granite interposed and throughout the entire width of the River presents a bold outline facing towards the east over which the River is split up into many different sections by the Islands above, and has a direct fall of nearly 38 feet. These Islands are numerous, some of them flat and in positions well adapted for Milling purposes, others are high and bluff and irregular, unsuited to any purpose.

The Rapids extend from the brink of the Falls for upwards of two miles westward, in some places they form only a moderate swift current, at others the descent is sudden and requires all the skill and energy of Pilots in charge of Rafts to keep them in the proper channel while running the rapids especially in heavy squalls.

From this short description of the locality and a reference to the Map it will be seen that in order to effect any thing like an efficient and permanent improvement of the navigation, it is desirable that the channel should be at some distance from the rapids, and from the immediate vicinity of the Falls, with a view to that object three distinct lines were examined.

First.—On the north side of the River nearly in the line formerly adopted by R. Wright, Esq., for Slide navigation distance between the Lakes by this route is 26 miles.

Second.—Through Victoria Island, distance between the Lakes by this route 3 miles.

Third.—By the Mississipi River and Snye distance between the Lake 6⅝ miles.

Thus it will be seen, that the relative positions of the lakes makes any line of connection between the head of the Rapids and the terminal point below the Falls greater on the south side of the River than that on the north, and a comparison of the respective entrances to and from each line is still more marked which unquestionably is of even greater importance than the distance.

At the head of the Mississipi route has been formed an extensive sand bar, which although removed from the position of the Bay would be likely to accumulate rapidly every season, hence an endless system of dredging would be the result.

At the lower entrance to this route the direct line between the main shore and the Island being shallow and the bottom for a distance of nearly a mile rock; at the same time a passage between the head of the Island and the Falls crosses the line of the slides situated on the South of Victoria Island, but even if the latter objection could be waived another of no less import consists in the proximity that a vessel must pass the Falls.

The lines through Victoria Island would consist of two distinct sections of Canal, between which would be a considerable declivity, and of course current. The Raft channel to the slide crosses the line and immediately on the other side is the rapid that leads to the great Chute.

In fact it is difficult to form an idea of how any craft could navigate this line, having to pass immediately under and parallel with the Falls at the lower entrance up a rapid current above the Island, and at certain seasons in danger every moment of being run foul of by an unmanageable Raft that cannot leave the line without being liable to be carried into the more immediate rapids and over the Falls.

The upper entrance would be an exposed position, shoal for a considerable distance outwards consisting partly of a Rock and part of a sandy bottom.

The North line terminates in deep smooth water at either end, affording easy access to and from Chats Lake at the upper entrance, and to Big Bay a part of Lake Chaudiere at the lower entrance. The Raft channel being on the South side of the River no interruption will be experienced from that source; the danger and uncertainty of crossing immediately under the Falls will be avoided, and the shortest line for connecting the two Lakes followed.

Thus the chief matter of consideration that ought to influence the location will doubtless be obtained by adopting the North. This line as already stated follows the course of a natural ravine on the route formerly adopted for slide navigation where upwards of 11,000 cubic yards has been done nearly all of which will be available the greater portion of the ravine although tortuous is sufficiently deep and wide to afford ample water way without the necessity of excavation except at a few points. The banks are high and will allow the summer level of Chats Lake being carried as far downwards as the location of the lower Locks and reaches between them will admit, it will however, be necessary to construct two Dams, one 100 feet, and the other 150 feet long at the places represented on the map, for the purpose of retaining the water in the Canal, where the ravine connects with the River, at these points a large quantity of water power will be available, hence the prudence of acquiring the necessary land for the erection of mills will be evident.

The greater portion of the excavation will be at the upper and lower entrances and consist chiefly of Limestone, but at some places the appearance of granite being interposed is presented. It is therefore believed that the quantity of excavation although small in proportion to the extent of Canal formed, and advantages likely to be gained, will, from the peculiar formation be of an expensive nature.

2nd Scale of Navigation.

The valley of the Ottawa from the diversity of its resources presents inducements alike to agricultural and commercial enterprise. It is well settled on the South side for nearly one hundred miles above Bytown,—abounds in minerals, unlimited in water-power, and one of the most valuable Timber regions probably in the World, as may be seen by the folowing extract from a Report made by A. J. Russell, Esq., of Bytown to the Crown Land Department in June 1852.

" On principles of calculation admitted by persons of experience to be correct, after making deduction for barren ground and future destruction by fire, " it is estimated that there might be still standing in the Ottawa and its tributaries " about 45,811.200 tons of timber of the kinds and average dimensions now " taken to market and about 183,244,800 tons of a smaller size that might be made use of."

Thus it will be seen that at the present rate of consumption 130 years will not exhaust the supply, independent of the natural growth during that period. The above has reference only to the qualities now brought to market, whereas the opening of a line of navigation to admit of an extension of Saw-mill operations, further into the interior would render much of the smaller sizes of Timber equally available and valuable, while by the same means a home manufacture and consumption would be created, tending greatly to induce settlement, and economy in preparing the Timber for transportation.

This section of Country already requires and has an import trade greater for the population than any other part of the Province, and an export trade fully double in value to that of any equal population in either this Province or the United States, and from its steadily increasing number of Settlers taken in connexion with its rapidly advancing commerce.

It appears a matter well worthy of consideration whether the works about to be constructed should be adapted only to present demands, or with a view to a still further increase likely to be brought about, or at least aided by the improvements contemplated. That the latter course is the most prudent one to follow, may be inferred from the present experienced inadequacy of some of the Canals constructed both in this Country and the adjoining States, where either an enlargement is in progress or called for, or an additional line to meet the wants of the trade demanded. It being a well known fact that facilities of transportation not only lessen the expense of valuable articles brought from a distance, but draw towards the channel thus formed, bulky, and less valuable commodities that would otherwise have gone to waste.

The Ottawa as already stated, from its junction with the St. Lawrence consists of a series of Lakes, connected by rapids of greater or less length. These Lakes, although wide, have at many places a deep channel comparatively narrow, the intricacies of which, together with the limited depth of water, render Steamboat navigation almost indispensable, it being a well known fact that in a Lake where the channel is narrow and remote from the shore, some motive power must be applied, other than the wind to urge a craft onwards to its destination, otherwise detention likely to result occasionally in wreck and disaster may be expected.

And it is equally true that a class of steam vessels of mnch less dimensions than those at present navigating the St. Lawrence Canals cannot be profitably employed in carrying either freight or passengers.

Hence as a depth of barely 6 feet water at low stages of the River can only be obtained, it is evident that in order to pass vessels of a moderately profitable tonnage, the Locks and prism of the Canal should be made sufficiently capacious to admit vessels of at least a like length and breadth of beam to those that at present pass through the outlet Lock at St. Anne, such being in reality only carrying out the scale hitherto adopted by the Government for the Ottawa navigation.

Due attention has been given to the scheme of adopting the scale of the Rideau Canal Locks and using the combined Locks at Bytown as a portion of the Ottawa works, but the project has many and serious objections apart from the very limited craft that could pass through them; some of these objections may be enumerated as follows, viz :—

1st. The Rideau Canal is 22 feet above Lake Chaudière consequently the supply would have to be drawn for both upward and downward Lockage from the Rideau, which according to the best information obtained is barely sufficient at certain seasons to supply present Lockage and the water power leased, if such be the case with the present limited trade on the Canal it would certainly be imprudent to attempt drawing a still further supply.

2nd. The distance of Canal to be made would be upwards of ten miles, and would require three Locks, that is to say, two Lift Locks and a guard Lock, which together with the great detention of so much Lockage and the liability to accident of a range of combined Locks, form a few of the reasons why, in my opinion the Government should avoid using any portion of the Rideau Canal in connexion with the Ottawa improvements.

If this view of the subject be correct, an independent cut should be formed on either the North or South side of the River. The latter from a cursory examination made, appears to be the most favorable, and to judge from the locality, I am of opinion that a Canal adapted to Steam-boat navigation could be made at about double the amount it would take to effect a junction with the Rideau Canal, while the respective merits of the two projects will scarcely bear a comparison as regards the advantages likely to be gained, I have therefore no hesitation in recommending to the Commissioners the adoption of an independent cut at Bytown, and the scale of navigation throughout, suitable for the class of Steamers that ply on the lower portion of the River.

All of whibh is respectfully submitted.

(Signed,) JOHN PAGE,
Engineer Public Works.

Appendix D.

QUEBEC, *17th June*, 1854.

SIR,—The extraordinary flood of last Spring, having shewn the necessity of adding to, and strengthening the works which have already been undertaken on the St. Maurice, I beg leave to enclose you herewith, for the information of the Commissioners, an estimate of the probable cost of such additions to the works, as I conceive to be indispensably necessary to ensure the safe descent of timber, as well as to render it perfectly secure in the booms at the mouth of the river, after it has passed down.

I also enclose a statement of the expenditure which has already taken place on the different works.

As I have already explained in previous reports, the working of the booms and slides last year, was attended with complete success. In consequence of this satisfactory state of things, limits were eagerly sought after, and the operations of the lumbermen during the past winter were greatly extended; individual companies undertook the improvement of some of the tributaries, roads were cut for a long distance through the woods from the settlements to the scene of their operations, and farming produce was readily purchased at prices highly remunerative to the agriculturist, which as may be supposed had the effect of giving a very decided impulse to settlement in the back woods. Among other evidences of progress, I may mention that a Steam Saw Mill on a very extensive scale has been erected at the mouth of the St. Maurice by an American firm, while other Companies have it in contemplation, to engage in enterprises of a similar character. A Steamboat is now being constructed to ply between the Grande Piles and the falls of La-Tuque. In the town of Three Rivers, and in the counrty adjacent, property has greatly increased in value, and the people in that vicinity in general have experienced such a course of prosperity as had not been known for a long time previous to the commencement of the works, such are among the effects of having thrown open to the enterprise of the lumbermen, a territory, which before the works were undertaken by the Department, was a complete wilderness.

The damage occasioned by the extraordinary flood of last Spring, and the loss which some of the lumbermen have sustained through their own imprudence in placing their timber on the ice, on the Main St. Maurice, will have but a slight effect in checking the spirit of enterprise which has already manifested itself with such beneficial results, providing such additions are made to the works, as will with proper management on the part of the lumbermen themselves, ensure under all circumstances the safety of their property.

I shall now proceed in the first place to offer some remarks on the accompanying estimates. In the next, I shall relate briefly the manner in which the losses already alluded to have occurred, and I shall then explain the method of "driving" which in my opinion the lumbermen ought to adopt in order to ensure this timber being brought rapidly and safely down the St. Maurice.

Booms at the mouth of the St. Maurice.

A great quantity of timber having come down when the flood was at its extreme height, there was for some time an immense pressure on these booms. The main cross boom, in front of which the stoping piers were built last winter, held firmly throughout, and it is to it that the safety of the timber is principally owing. The side boom in front of the square piers bent considerably, and apprehensions were at one time felt for it, but upon its being doubly bound with chains, it was rendered perfectly secure.

The glance boom in the east channel having filled up too far, gave way once, letting loose a comparatively small quantity of logs, but it was immediately replaced in its position, and by rafting a part of the timber as it came, and passing a portion of it into a boom placed lower down, the recurrence of a similar accident was prevented. On the accompanying estimate, twelve new piers are provided for; three of these it is intended to place in the east channel, three at the head of Isle Cauchon, four at the Main boom, one at the gate in the West Channel above the bridge, and one below the main Boom; which latter will be so placed as to afford some what greater facilities for rafting. The moring posts specified in the estimate, will be built up part of them on the shore of Isle Christophe, and from these long chains will be extended to the boom; others of them will be placed about the islands, so that rafts may be fastened from them, while timber is being passed from the booms.

Grai Falls.

Eight small cribs are proposed to be sunk at this place, for the purpose of keeping the glance booms in their position, and facilitating their being extended in the Spring.

Shawenegan.

During such a flood as occurred last Spring, I am convinced that no retaining boom could stand in the lower Shawenegan Bay, unless the timber was made to rest on sloping piers placed in front of it as at the main cross boom at the mouth of the river. I would therefore, propose to build sixteen additional piers, and with these I am confident that the boom will be secure.

The crib work in the large eddy requires to be heightened, and a similar facing of crib work requires to be built up on the east side at a bend in the shore nearly opposite the foot of the slide where timber is sometimes greatly injured. The probable cost of construction of all of which is included in the estimates.

The additional four cribs which it is proposed to sink in the upper bay, and the six piers which are required for the support of the long glance boom, leading from the upper island to the east main shore below the Hetres Rapids, will render it a matter of ease and safety to extend the guide booms in the spring, and will be the means of saving a great deal of time, and expense, in placing them in their position.

Grande Mére.

The small flat dam at the head of the west channel, put up in the spring of 1853, at a cost of about £75, was on the 8th day of May last, carried off by the ice, four buoys with chains were also carried off. The chains in value about £100,—will I am confident be recovered at low water. The want of the small dam does not affect the working of the slide at the present pitch of water, but it should be replaced by a larger and more substantial one, loaded solid with stones as provided for in the estimate. When the flood of last spring was at its height, the water was almost level with the main dam, (which is already raised 25 feet over low water.) I have in consequence proposed to add two courses to its height, which will do away with all risk of the water ever passing over it. The small cribs eight in number which it is proposed to sink, will greatly facilitate the placing of the guide booms in the spring, and will also lessen the expense.

Falls of LaTuque.

As this is the only place at which the works have sustained any considerable damage, and as I could not leave the other works to visit so distant a station, I subjoin the account which the person who was in charge at that place gives of the loss and the manner in which it occurred.

As soon as he saw the river as he supposed completely clear of ice, he had the booms extended and everything put in good working order. For several days there was no appearance of ice; but on the 13th of May he observed a large field coming down which filled the river from side to side. In order to save the booms he made all haste to unfasten the chains, and allow them to swing ashore, but before he could accomplish this the ice came against the Main boom and broke through it, carrying 1300 feet of it over the falls. At the same time the cover of the large dam was broken, but he does not suppose the injury to it is serious. The loss of the booms however which was of the best and most costly kind, cannot be set down at less than £487 10s. 0d. There was in all 4000 feet of broad boom at La Tuque, 1300 feet of which is now lost. The cost of replacing it I have included in the estimate; The sum set down to complete the other works at LaTuque will, I am confident be sufficient as there is already a large Stock of material and supplies on hand at that Station.

With regard to the proposed works generally, when the water falls sufficiently low no time should be lost in commencing operations. At LaTuque there is abundance of material on hand, and at the mouth of the river there is enough to make a beginning. At the Grande Mére, Shawenegan, and Grai's Falls, stones should be collected and piled for filling the piers with, which latter should be built in winter when the timber required for their construction can be drawn out of the woods.

I come now to speak of the losses which some of the lumbermen have sustained, and as it has suited the interest, or convenience, of such of them as had squared timber on the main St. Maurice, in the vicinity of the Falls of LaTuque, to attribute these losses either to the uncontrolable nature of the river, or the management of the works, it becomes my duty to explain to the Commissioners, that in as far at least as they are concerned, the injury done to their timber was occayasioned solely by their own imprudence in having placed it on the ice, where it was beyond their power to retain it until the booms should be extended, and the river in a fit state to pass it down; and to prevent the evil which may arise from reports utterly incorrect, and prejudicial to the interests of the territory being put in circulation, and gaining a credence which they now deserve. I would respectfully suggest the propriety of giving publicity to the statement which I now make.

The St. Maurice in the facilities which it affords for the safe and rapid descent of timber, is unequalled by the Ottawa or any other river with which I am acquainted, but to avail themselves of all its advantages it is necessary that the lumbermen should refrained from putting any of their timber on the ice.

I speak of the main St. Maurice, where, from the rapidity of the current the ice piles up edgewise, forming in some places into ridges of an enormous thickness, accumulated thus, as may be supposed it is not much affected by the thaws of the spring, but on the coming down of the flood which is sometimes very sudden, it breaks up into large fields which are swept on with a force and speed which nothing can resist. This applies especially to the long reach between the Grande Piles and the Falls of LaTuque, where the principal part of the timber that broke adrift was made. At the Grande Mére, and Shawenegan, sheltered at these places are to a considerable extent by islands, the action of the ice is less violent, nevertheless it is such as to carry any boom which should cross the river before it in an instant, and it would, in consequence be an act of manifest folly either to leave the booms extended in the fall, or to attempt placing them in the spring before the river was completely clear of ice.

It is therefore evident, in the first place, that timber laid upon the ice would be carried off, and in the next that coming down with the ice as it certainly would, it would inevitably be swept over the falls before the booms could be extended to guide it into the Slides.

Fully aware of this after I had spent one season on the St. Maurice, I kept an advertisement for months in the papers, recommending the lumbermen to take the proper precautions to prevent their timber from getting adrift with the ice in the main St. Maurice.

Perceiving that this warning was utterly disregarded by the persons engaged in the manufacture of square timber during the past winter, in order to save them in as far as possible from the consequences of their own imprudence; I placed on the works previous to the clearing away of the ice, double the number of hands that would be required under ordinary circumstances. The men in charge at the different stations were the same who the year previous had worked the booms and slides with complete success, and the hands employed were the best and most experienced that could be found. As soon as the ice had so far cleared away as to admit of the attempt being made, every exertion was used to have the guide booms extended, and the slides put in operation, but before the booms were clear of ice in the bays where they had lain during the wister, a great quantity of logs had passed down.

Every experienced lumberman is aware of the difficulty of extending booms in a rapid current while timber is descending, and of the danger as well as difficulty which attends the operation when they have to be placed at the head of falls which present the prospect of instant destruction to the workmen, in the event of their being upset, or losing their footing. At Shawenegan seven men were upset two of them were swept over the falls; at the same time several of the people at the Grande Mère had a very narrow escape. These accidents had the unfortunate effect of intimidating the men so much that it was scarcely possible to get any one to work. The attempt to place the booms was however, again and agian renewed; but the quantities of timber in the river coming down too at the height of a most unusual flood, rendered every effort unavailing and they had ultimately to be drawn in until the flood subsided a little when they were at once placed in their position, and the slides put in operation, but this was not until the squared timber had all or nearly all passed down.

Those who placed their timber where it could not be retained were thus the means of injuring others as well as themselves, inasmuch as through the error which they committed they were instrumental in preventing the slides from being put in operation in time.

The quantity of squared timber made on the St. Maurice during the past winter, compared to the number of saw logs was but small: the loss consists principally in the injury it has sustained in passing over the Falls, as well as in the delay and consequent expense incurred in getting it off the banks and out of the woods, where a portion of it had been carried by the flood.

By far the greater portion of the saw logs, in all about 220,000 will have had the advantage of the slides. Several thousand were carried out into the St. Lawrence chiefly of the logs which broke unexpectedly from a private boom at the Grais Falls, before the public booms could be extended at the mouth of the river, a considerable portion of these were picked np in the St. Lawrence, and I am of opinion that the quantity totally lost is but small.

The following are the arrangements which I think the lumbermen, from henceforth ought to adopt in order to insure the safety of their property.

Timber made any where along the main St. Maurice should be placed during winter on "roll-ways" for, however sheltered the situation may appear to be, experience has now shewn that it is unsafe to lay it on the ice.

When the river opens in the spring and when the ice has all passed down, a temporary boom might be extended in front of the roll-way where the timber may be, the logs should then be put in the water; that is if the situation will admit of this being done without the risk of their breaking adrift, otherwise the timber on the roll-way should not be disturbed until it has been ascertained that the public booms are all extended.

If the timber for instance has been made any where between the Grande Piles, and the Falls of LaTuque, a sufficient number of men should be stationed at the Grande Mère, and Shawenegan, to render assistance if reqnired in passing it through the booms and slides, and to keep it from being injured in the eddies; a few should also be stationed at such other places as the logs would be likely to accumulate in, or receive injury from chaffing on the shores, where these arrangements are all made; but not till then,—the timber should be driven down with as little delay as possible. If the flood should be at a very unusual height, it would of course be prudent to wait for a few days until it began to subside, inasmuch as when the river is high over its banks, as it was for a short time last spring, a portion of the logs would be carried into the woods, and the expense and delay of getting them afloat again would be very considerable.

On the St. Maurice, there are few if any places where jams form, such as are known on the Madawaska, Gatineau, and other tributaries of the Ottawa. If therefore the logs are closely followed and kept from grounding at the shores, or on the shoals, it would not require many men to bring down the rear of the drive.

By adopting these arrangements I am of opinion that a parcel of timber might be taken from LaTuque to the mouth of the St. Maurice in eight or ten days at most. A great saving of time would thus be effected, whereas, if it is placed in winter where it cannot be retained in the spring, and if no arrangement is made for passing it down further than by stationing a party of men where it was drawn out, and placing another to receive it at the mouth of the river, with more than a hundred miles intervening without any one to look after it, or keep it out of the eddies or off the shores, it must as a natural consequence occupy weeks, and months, as in some instances it has hitherto done, to bring it down.

When several lots of timber have been made in the same vicinity it would be to the advantage of the different parties to combine their operations and drive their timber together, as if it all belonged to one individual establishment. In this way a great deal of expense would be saved, inasmach as fewer men would be required, than if each party worked independently of the other.

Lumber made on the main St. Maurice should also be placed on "roll-ways', and none of it should be sent adrift until it is ascertained that the public boom at LaTuque has been extended, from LaTuque down the same arrangements should be made, as I have recommended for timber taken out below that place.

With regard to tributaries if timber is made upon them, where it would be likely to enter the main St. Maurice, before the ice had left, it will be proper that it should also be placed on roll-ways, or that the streams where it is should be boomed at their confluence with the main river by the parties interested.

Persons engaged in lumbering on the Matane would gain a great deal by placing a boom at the mouth of the river, for although the timber does not reach the St. Maurice before the ice has cleared away a part of it begins to come out long before the bulk of it arrives, and getting shattered along the shores of the St. Maurice at the height of the flood, it requires a great deal of labour afterwards to roll it into the water.

These arrangements, which I would respectfully suggest the propriety of recommending the lumbermen to adopt will, of necessity sooner or later be carried into effect, and when they are so, the bringing of timber down the St. Maurice will be a matter of ease, and satisfaction to all concerned.

(Signed,) SIMON L. DAWSON.

Estimate of the cost of certain works required to complete and render effective, the works already commenced on the river St. Maurice.

Booms at the mouth of the St. Maurice require 12 additional piers for their support which will take

		£	s.	d.
40,000 feet of timber	*a* 8d.	1333	6	8
3,150 cubic yards stone filling	*a* 5s.	787	10	0
12,000 lbs iron bolts	*a* 3½d.	175	0	0
ALSO,				
20 mooring posts built up on shores	*a* $24.	120	0	0
—in addition to which,—				
allow to heighten piers already built		250	0	0
		£2,665	16	8

SHAWENEGAN.

Lower Bay.

16 boom piers required, which will take,		£	s.	d.
48,000 feet of timber	*a* 5d.	1000	0	0
4,000 cubic yards stone filling	*a* 3s. 6d.	700	0	0
1,600 iron rag bolts	*a* 3½d.	223	6	8
To heigten Crib-work in great eddy, to built up a similar facing on the east side, and to heighten the piers already built, allow		400	0	0

Upper Bay.

		£	s.	d.
4 additional Cribs to be sunk for mooring booms to, will take 60,000 feet of timber	*a* 5d.	125	0	0
400 cubic yards stone filling	*a* 3s. 6d.	70	0	0
2,000 lbs iron bolts	*a* 3½d.	29	3	4
These piers will be about 15 feet square and sunk in fifty feet water.				
6 piers are required for the support of the boom leading from the upper Island to the East main shore, below the Hetres Rapids, which will take				
12,000 feet of timber	*a* 5d.	250	0	0
800 cubic yards stone filling	*a* 3s. 6d.	140	0	0
3,000 iron bolts	*a* 3½d.	43	15	0
These piers will be built where there is only a depth of 5 feet at low water, having a slope on the up-stream face so as to guard against their being injured by the ice.				
		£2,991	5	0

GRANDE MERE.

Required at this place :—

		£	s.	d.
A flat dam 150 feet long at the head of the fall on the West side, wood work of which will cost		£150	0	0
300 cubic yards of stone filling	*a* 5s.	75	0	0
Allow for putting two additional courses on main dam at head of slides and filling it up with stone, say		150	0	0
8 cribs 13 feet square require to be sunk in 30 feet water, for mooring the booms to, which will take				

12,000 feet of timber	*a* 5d.	250	0	0
800 cubic yards stone filling	*a* 5s.	200	0	0
4,000 lbs iron bolts	*a* 3½d.	58	6	8
		£883	6	8

GRAI FALLS.

8 piers to be sunk to the bottom for mooring the booms to, instead of the anchors used at present, will take

12,000 feet of timber	*a* 6d.	£300	0	0
800 cubic yards stone filling	*a* 4s.	160	0	0
4,000 iron rag bolts	*a* 3½d.	58	6	8
		£518	6	8

FALLS OF LATUQUE.

Require :				
1,300 feet of boom	*a* 7s. 6d.	£487	10	0
In addition to which it will take to complete the works there.		1,000	0	0
		£1,487	10	0

In addition to the above the following amounts have to be provided for.			
Edward Normand, balance of contract and extra work at the mouth of the St. Maurice.	500	0	0
Edward Quinn, for timber left at Shawenegan, for the use of the works.	150	0	0
And to pay settlers for timber cut on their lands.	150	0	0
	£800	0	0

Abstract total proposed outlay.

Booms at the mouth of the St. Maurice.	£2,665	6	8
Shawenegan, upper and lower bays.	2,991	5	0
Grande Mére.	883	6	8
Grai Falls.	518	6	8
Falls of LaTuque.	1,487	10	0
Sundry accounts.	800	0	0
	9,345	15	0
Add for Superintendance and contingencies.	500	0	0
	£9,845	15	0

(Signed,) SIMON J. DAWSON,
Superintendent river St. Maurice Works.

Appendix (E.)

SEYMOUR WEST.
12th January, 1854.

SIR,—I beg to make the following Report of the work done during the past year at the different Stations, with the respective cost of each. Also an estimate in detail of the work absolutely necessary to be done during the present winter and ensuing summer. Together with a general description of the condition of the works under my charge. The following is a description of the work and cost of same.

Whitlas' Rapids and Little Lake.			
Three Piers for the support of a line of booms 1407 feet in length, for the protection and convenient entrance of Lock; also for the collection of Timber to be rafted. Removing floodwood, repairs to Dam	£822	19	5
Crooks' Rapids.			
Three Piers built for the support of boom 300 feet long, clearing bank South Shore ½ mile, gravelling Dam, whitewashing, and new flooring Swing Bridge	228	5	0
Heelys Falls.			
Building two Aprons, side Piers to lower one, taking up top part sunken crib, raising foot of second slide, putting on glances between two slides, raising throughout upper slide, gravelling Dam, excavating shoal below slide. New set stop logs and gear, repairs to Apron the Fall	750	18	9½
Crow Bay Boom.			
Was cut away and let down the Rapids had to be replaced and repaired	41	17	4
Middle Falls.			
Building two Aprons, repairing side walls, glance booms, replacing Aprons, cofferdaming to give more water to slide	184	5	0
Fiddler's Islands.			
Deepening channel, building wing, wall and cribs to give water straight course between Islands; set stop logs and hoisting gear to gate	295	0	
Seymour Bridge.			
Repairing booms on West side of raft Channel for guide through bridge	30	5	10
Ranney's Falls.			
Apron to second slide, side Piers for same, adding 80 feet to length to upper slide floor, repairing Boom, Pier, side walls, floor of slide	123	15	8½

Eel Wier Shoal.		
Deepening Channel, removing boulders		167 10 0
Percy Boom.		
Repairing and Swinging		10 10 0
Chisholm's Rapids.		
Excavating rock immediately below slide	5 0 0	
Watching end of Dam to prevent malicious persons interfering with same	16 17 6	
		21 17 6
Nine Mile Rapids.		
Removing boulders, clearing Channel for rafts		130 0 0
Incidental expenses		25 0 0
		£2,832 13 6¾
Amount for chains &c., distributed at all the Stations	70 11 6	
Amount of accounts rendered by Neilson & Brown, months of January and February, part of which is named above, but amounts not included	108 17 5	
		179 8 11
		£3012 2 5¾

The following is a memoranda of what is still to do, from the order granted this last fall, for ordinary repairs.

Whitlas' Lock.		
The gate posts to be repaired		£7 10 0
Crooks' Rapids.		
The left hand side of slide, 1 piece of timber to be replaced 45 feet *a* 7½d	1 8 1½	
75 feet 6. in. Plank of slide floor *a* 7½d	2 6 10½	
		3 15 0
Percy Boom.		
To be repaired and swing		50 0 0
Chisholm's Rapids.		
Protection to South end of Dam	15 0 0	
Repairs to lock) gates	2 10 0	17 10 0
		£78 15 0

The above together with the following described repairs and improvements for the preservation and maintainence of the works and navigation are absolutely necessary.

Bobcaygean.

It is necessary for the passing of timber that a set of stop logs and hoisting gear should be built in the place where a waste gate was made in the north-end of the Dam. Posts rabated to receive 18 feet logs is the present arrangement; Two small Piers will be required to protect posts 12 feet sides set on up stream side of Dam, the probable cost will be.................................. £60 0 0

The embankment between end of Dam and head of Canal requires raising to prevent water washing over in spring say 25 cords at 10s.. 12 10 0

Buckhorn.

No arrangement was ever made in the Dam, for passing of lumber. The gates and bulk head posts were cut away by lumbermen, making a breach in the Dam, over which ran the bridge, both were carried away, about 80 feet in length. The necessity for repairing the work is to keep up the water in the Lakes above for passing of lumber, and for these purposes I would recommend a slide to be placed in the breach, which might be put in during the latter part of this winter.

Estimate of probable cost will be as follows :

Removing old formation..................	10	0	0
Side Piers for slides 50 x 10 x 9 with a slide 80 x 30 with apron 50 feet long................	295	0	0
Rebuilding Piers on each side of slide to fill up breach.................................	34	0	0
Removing and re-building return of Dam to upper Bulk Head of Mill race.................	22	15	0

361 15 0

The Boulder Shoal immediately below should be removed and inside Dams for the benefit of the navigation, which can only be done to advantage at low water.

Crooks Rapids.

The Dam is out of repair, the stone filing has worked out in consequence of the planking on the down stream side being broken off by timbers working in the re-action. In order to replace the planking and stones; it will be necessary to lower the bar of accumulated stones and shingle between the Bridge and Dam, distance of about 200 feet, to let the water down sufficient to get at the toes of the rafters. It is also necessary to gravel the Dam, in order to keep up the water to a navigable height in Rice Lake and Otanabee River, about £200 was expended last year in gravelling; but was not sufficient to make the job perfect, at lowest last summer there was about 6″ water on the apex previously, the whole river runs under the Dam at low season, it is difficult to say what amount it may require from the large surface that it is to cover; but would try 300 cords *a* 10s.. 150 0 0

Heely's Falls.

The Dam requires gravelling also, to keep the water over the Dam and through the slides, the works were greatly benefitted by what was done last year, inasmuch as the flooring and planking of Dams and slides required much less repairs, 200 cords of gravel would make a good job *a* 10s.............................. 100 0 0

The gravelling should be done in the months of August and September only.

Fiddler's Islands.

A breach has been formed in the wing Dam or wall about 200 feet in width from where it joined the Dam. This sets the water directly across the raft Channel and against the Island on the West side of the river, which stops the navigation for lumber until it is repaired, and in order to do so it will be necessary to put in a Coffer Dam, and place a crib in the breach. The probable cost will be as follows :

Coffer Dam 500 feet....................	75	0	0	
Crib 200 x 16 x 15—8960 feet timber *a* 7½d....................................	180	0	0	
140 cords stones *a* 12s. 6d................	87	10	0	
				342 10 0

I beg to refer you to Special Report, I think this includes all absolutely necessary for the present, for the above named purposes.. £1105 10 0

With regard to the condition of works generally, they are in good repair; but of such nature and extent that it is difficult to calculate for the maintenance.

The business for this season, I think will not be as much as the past in consequence of the late commencing and difficulty of getting men and provisions, also some turning their attention to the sawed lumber trade for the American market. The amount of our tolls last year was £1231; I think the tariff should be raised it is not as much as is charged on other rivers,—inasmuch as our works are extensive and expensive to maintain, renders them non-productive.

If the hydraulic powers at the different stations were offered for sale I think they would be sold and cause a revenue, in most instances the Government has retained no land, but even so, parties would manage to procure that if the powers were offered for sale; once shewn that the power did not belong to the different private parties it would stimulate them to improve or sell, there are ample opportunities for 200 run of stones or gates between Crook's and Chisholms, say value them at £5 each a year £1,000, the prospective and already made roads will soon bring them into notice and the country requires them, as it now stands it is a sort of monopoly, the Government commanding the powers and private individuals, who are not able in some instances, others not willing, to make use of the natural advantages which the country affords, which are to be maintained at the cost of a thousand a-year from the Public Revenue.

There is no toll Collector at Lindsay or Whitlas' locks, the lock tender at Lindsay has the receipts for his attendance, at Whitlas nothing is collected and the tender is paid £30 a-year.

A lock at Bobcaygean will be asked for soon, the present being perfectly decayed ; the construction of which would make a reasonable return in the way of opening up the country, and create the sale of lands together with the traffic now commencing to generate in the lumbering business in that part.

I have the honor to be, Sir,
Your obedient servant,
(Signed,) G. W. RANNEY,
Superintendent Trent Slides.

Thomas A. Begly, Esq.,
Secretary Public Works, Quebec.

APPENDIX F.

TRENTON, 12th October, 1853.

SIR,—In accordance with your instructions of the 13th ultimo, relative to the improvements proposed to be made in the navigation of Scugog River below the Lock near the Village of Lindsay, also at Bobcaygean and Buckhorn Dams at the foot of Buckhorn Lake, I immediately proceeded to those places and examined each as minutely as possible. I now have the honor to enclose herewith a detailed statement and estimate of the quantity and quality of the work required to be done to render these waters navigable for Steamboats and other craft drawing four feet six inches water, and for the facile and safe running of Timber over the rapids at Bobcaygean and at Buckhorn.

In the first instance, I examined the Lock at Lindsay Village, in order to ascertain the depth of water on the Mitre Sills, as the quantity of work required to be done would depend a good deal on how the water stood on this place; I found three feet water on the Mitre Sill, I then took soundings along the river below the Lock, until I got into five feet water and over. I enclose herewith a table of the soundings, which will I think assist you in forming an idea of what is best to be done for the improvement of the Navigation at this place, from the Lock to deep water, or rather to five feet deep and over; the ditsance is two hundred rods; the bed of the river for this distance is lime-stone rock; what I could see of the upper bed appeared to be six or eight inches thick; what the under beds are I cannot say; the rock appears to be quite sound. By reference to the table of soundings, you will see that the depth of water on this bed of rock, varies from 2′ 10″ to 4′ 6″, but a great deal of it is about 3′ 6″, by this you will I think see that it would be useless to sink the bed of the river any deeper without taking up the Mitre Sills and lowering them at least eighteen inches. The lowering of the Sills, the lengthening of the Gates and deepening of the bed of the river through sound lime stone rock to the depth required to give 4′ 6″ water on the Sills, would be attended with a great deal of expense, as rock cannot be shaved to the inch as earth or gravel could. I think less than 18 inches deep could not be calculated on; this for two hundred rods long, and say 20 yards wide, would amount to 11,000 cubic yards rock, this light cutting in the bed of a river where it is difficult if at all practicable to turn off the water without incurring a heavy expenditure. It would I think be considerably cheaper to build a new Lock at the foot of the shallow water to raise the level above, than attempt to disturb the old Lock and do the rock excavation, but after these things the best consideration I could, I came to the conclusion, that the best and cheapest way to give deep water at this Lock and shallows, is to raise the Dam at Bobcaygean so as to get up the water sufficiently high, and make the Dam sufficiently tight to keep it there when it is up, one of the difficulties was that this Dam never was I think made sufficiently tight to keep up the water to its proper level for the navigation, it was all very well during the Spring and Fall when there was a strong supply from the different tributaries, but when the dry months during navigation set in, and the tributaries began to fail, the waste of water under, through and around the Dam was greater than the supply, consequently the water gradually fell away so as to be too low for navigation, and besides seriously affected the health of the Settlers on the borders of the Lakes by stripping and leaving exposed decayed vegetable matter during the dry hot months. I estimated for raising the Dam it being cheaper and preferable in my opinion. Please see estimate.

There are some bad turns in the river between Lindsay and Sturgeon Lakes. To avoid these it is necessary to make two shutes amounting to about five hundred yards in length; these cuts will I understand shorten each trip about three miles; also, they are through wet marshes thickly covered with standing as well as fallen timber; there is at present from one foot to   inches of mud and water all over them, I could with my hands by hard pushing run a pole down about four feet through it, it then comes to a hard bottom; these places must be dredged, there is no way of getting the water off so that it could be got out by spade or shovel, nor can men or horses be got to or from it except by a boat or scow, these cuts should be made sixty feet wide and four feet deep at least, to do which requires a new dredge to be built and also a new scow on either or both of which temporary places should be fitted up for men and horses while the work would be doing, as there is not a dry spot to build a shanty or stable for horses any place near the work, and if there was, they could not be got in or out without a boat. Four horses will be required to work the dredge; there is a deal of heavy timber and large roots to contend with, and as the place will be at all times wet, there will be no such thing as getting at roots with an axe, power must be used; these cuts must be unavoidably done to render the navigation easy and safe, more particularly at night, and when a Steamboat has other craft after her in tow, or rafts in tow.

Lock at Bobcaygean.

This Lock is neither as wide or as long as the one at Lindsay; the new Lock will have to be made wider, longer and deeper than the old one is, to correspond with the one at Lindsay. The Steamer Woodman that is now running on Scugog Lake and river down to Lindsay, is thirty-two feet wide over all; the lock is thirty-three feet six inches between the piers, so that it is only the right size for the boat. I made the estimate for a Lock the same size as the one at Lindsay and estimated it in two ways, one for a Wooden Lock, and one for a Stone Lock. I was induced to estimate for a Stone Lock, from seeing the finest of lime stone in the vicinity of the Lock. The Lock is founded on rock. The difference in cost between a Wooden one and Stone would not according to my ideas much exceed one thousand pounds. This Lock and the one at Lindsayare all that ever will be required to complete the navigatton of a chain of fine Lakes for nearly seventy miles, looking a little to the future as well as the present, and at the facilities on the spot for doing a good permanent work, and at the small difference in the first outlay, I am induced to respectfully suggest to the Commissioners the propriety of at once building a good Stone Lock in place of a Wooden one. The Lock at Lindsay is fast going to decay, and the time is not far off when a new Lock must be built there, it can then be built from a quarry near Bobcaygean of the best materials; when both are once done this way, they are for ever done; the stone could be boated up at small expense.

Bobcaygean Dam.

This Dam is not in a fit state at present to keep up the water in the level above it; it is founded on a bed of lime stone rock, in which there are large vertical open joints, the water in many places passes down through joints between the beds and under the Dam, and rises up on the lower side of it; it also passes through the Dam and around the Dam through the banks. To remedy these leakages a large quantity of materials was placed on the upper side of the Dam, but not being the right kind of material it had not the desired effect. As I before observed, this Dam should be raised at least one foot higher than it is at present, then well and newly shuted and carefully puddled so as to make it tight, by doing this I think there would be no nesessity for disturbing any part of the Lock at Lindsay, or going into the expensive rock excavation there. When I thought of proposing this course to the Commissioners, I was fearful that it might drown lands that were before always dry, but on enquiry I ascertained that it will not, and besides raising the Dam will cause very little additional expense, because in any case the Dam must be repaired before a boat can come down.

A slide is very much required at this place. I made inquiry of persons concerned in the lumber business about the size a slide at this place should be. I was informed that it should be thirty feet wide in the clear and sixty feet long; the longest pieces are generally about sixty feet, to prevent the lower end stricking the rock in low water, before the upper end clears the top of the slide, it is said the slide should not be less than sixty feet. I have accordingly estimated for one of this dimension and twelve feet of an apron at the bottom in addition; this in my opinion so far as dimensions are concerned will answer every purpose. For details see estimate.

A slide of the same dimensions will answer at Buckhorn Dam; the site is nearly similar and details the same. The bridge at this place was partly built across the Dam; timber accumulated above it, and some raftsmen cut away the Dam; this made a breach of over eighty feet long on it, and entirely and completely carried away the bridge for this length, so that even foot passengers could not cross it, much less animals or waggons; over eighty feet of the bridge will have to be built entirely new and some repairs done to other parts of it.

The Dam at this place is nearly six hundred feet long, over one hundred and fifty feet of it will have to be entirely built new, the remainder will have to be newly planked over with some new longitudinal and other pieces to support the sheeting, it is also necessary to raise this Dam at least a foot and puddled in every respect the same as at Bobcaygean, by raising the Dam here about one foot, not less, and putting in the new Mitre Sill at Bobcaygean about six inches lower, it would give sufficient water for a vessel drawing four feet six inches.

In conclusion, I beg to state that the whole of this work is so linked together that to attempt to do any part without doing the whole would not be much public advantage, The country about those Lakes and streams is filling up fast with an energetic pushing class of people. There are several Saw Mills erected and being erected along those waters that will employ a large number of hands, among those Mill proprietors there is a Mr. Wallis of Peterborough, now erecting at Fenelon Falls, Saw and Grist Mills, and I understand that he intends to work forty-eight saws in the one Mill. All the lumber cut at this place must pass up through the Lock at Lindsay on its way to the Lake at Whitby Harbour, or down through the Lock at Bobcaygean to Peterborough and Cobourg or Port Hope. The above is respectfully submitted.

I have the honor to be, Sir,
Your obedient servant,

Signed, JAMES RIGNEY.

APPENDIX G.

PUBLIC WORKS,
Quebec.

SIR:

Agreeably to instructions, I beg to submit the following brief Report, on the present condition, works in progress, and improvements required at Port Stanley Harbour:

This Port is situated on the North Shore of Lake Erie, about 26 miles South of London, and forms the principal outlet for a large extent of fine Farming Country, from which great quantities of produce are annually shipped, it is nearly surrounded on three sides by hills of considerable height, which effectually shelter and protect vessels in the Harbour during almost any storm,—at present there is a depth of fully 10 feet water between the Piers, and a like depth throughout a portion of the inner Basin,—but much inconvenience, and frequently danger, is experienced by those in charge of vessels, entering or leaving the Port during the strong southwest gales that prevail at certain seasons,—this difficulty arises chiefly from the very limited width of the entrance, insufficient Pier light, and the absence of a good shore or leading light, and last though not least, the lax manner in which the Harbour regulations are enforced, by which parties who have erected Storehouses adjoining the Piers or Wharves are allowed to pile Cord Wood, Stone and other articles in front or alongside of their buildings, to the great annoyance and inconvenience of the public, and still greater damage of the works. In one instance fully 200 tons of stone was observed piled on the Pier, and in another a large quantity of iron broke down and destroyed a portion of the new planking before it was two weeks laid.

The extension of the Pier work is nearly, and would have been entirely completed, but for the great difficulty in obtaining stone for ballast, the work is, however, perfectly safe, and arrangements have recently been made to procure the necessary supply of stone; before sinking the additional work care was very judiciously taken to prepare, by dredging the seat of the respective cribs, which has had the desired effect of enabling a straight uniform line to be maintained throughout, presenting where completed a fair and finished appearance.

The rebuilding of a portion of the east Pier superstructure is progressing satisfactorily, and will with the exception of ballast shortly be completed.

The dredging of the inner Basin proceeds slowly, but the work done has had the effect to some extent at least of preventing the silt and sand brought down by freshets from being deposited within the Piers; this partial result, although not conclusive, still shows that, as the natural channel of the creek becomes straightened the quantity of deposit is diminished and appears to justify the conclusion, that when the Basin is completed the natural force of the current in the straight channel will be likely to aid materially in keeping it clear.

The greater portion of the dry excavation is done, and the material placed so as to form part of a wharf or embankment on the west side of the Basin, as provided for by the contract.

Official Returns show that within the last 10 years, both the Exports and Imports by Port Stanley Harbour have more than quadrupled; and that the Duties collected in 1853, amounted to £19,603 11s. 1d.; Harbour Dues, to £2 029 6s. 11d.

Thus whether it be viewed as a Harbour of Refuge, Port of Entry, or a remunerative investment, it is second in point of importance to no other work of a similar nature and extent in the Province Such being the case while it is connected with London by a common road only, we doubtless can with certainty look forward to a very large increase in both Export and Import trade, on the completion of the London and Port Stanley Railroad, now in progress of construction, the Depots of which are located in the immediate vicinity of the inner Basin of the Harbour, hence the necessity of enlarging and improving the inside accommodation and affording greater facilities of egress and ingress to the Harbour,—with these objects in view, I beg respectfully to recommend the following improvements, viz:—

1st. The extension of the west Pier, at least 200 feet, opening outwards from the present line, with a covering crib of about 60 feet in width at the extreme end, on which a good Pier light should be erected. The latter would mark out the immediate entrance at night, and the former enable vessels to gain a lee previous to slackening sail during prevailing southwest gales. Cost, £1800.

2nd. The erection of a Lighthouse about 40 to 45 feet in height on the high land east of the Harbour, in which should be an efficient light that could be seen at 10 or 12 miles distance. Cost, £400.

3rd. The construction of a line of protection docking (800 feet) along the west side of the inner Basin, to consist of crib-work 12 feet in width to the surface of the water, thence upwards of a continuous superstructure to the height of the other Pier, so as to serve as a wharf, at which vessels can load and unload, to and from the Railroad. Cost, £2800.

These with good Harbour regulations properly enforced, would add much to the safety and security of vessels, and give such facilities to the place as its importance seems to demand.

I have the honor to be,
Sir,
Your obedient servant,

(Signed,) JOHN PAGE,
Chief Engineer Public Works.

APPENDIX H.

PUBLIC WORKS,
Quebec, 20th June, 1854.

SIR,—In compliance with instructions contained in your letter of the 20th May, relative to the location of certain Light Houses proposed to be erected on the Lower St. Lawrence and Straits of Belle Isle, &c. &c. I beg respectfully for the information of the Commissioners to Report in the following order, viz:—

First.—Location of the respective Light Houses authorized.
Second.—Straits of Belle Isle with reference to Harbours of refuge, &c.
Third.—Places where the erection of other Light Houses are desirable.

1ST LOCATION, &c.

West Point of Anticosti.

The extreme West Point of this Island stands about 12 feet over high water mark, and consists of Lime Stone covered to the depth of 7½ feet with shingle of an angular shape evidently of the same class of rock as the precipice lying towards the North and East, which at the distance of 1200 feet from the point in an easterly direction rises abruptly to the height of 70 feet.

This high land under other circumstances would have been the preferable site for the Light-house, but the low shelving rocks that extend to the South and West, as also the projecting points towards the East, determines the proper position to be the extreme *west point*, which will be about 47 miles distant from, and open in the direction of the revolving Light on the South-west point of the Island—and about 45 miles distant from the nearest point of Gaspé,—65 miles from Cape Rosier, and 23 miles from the Mingan Islands, on the Labrador Coast.

Considerable difficulty will be encountered in landing such portions of the materials for the construction of the Light-house as must necessarily be brought from a distance, there being neither bay nor cove in which a vessel can find shelter or anchorage within 12 miles of the point, and a flat shelving rocky beach extends outwards ¼ of a mile on either side, which is dry at low water and only partially covered by neap tides.

Several places were examined in the vicinity of the point and towards the North and East sides of the Island with the view of ascertaining whether a proper description of stone could be obtained for the erection of the necessary buildings, but none were found that could judiciously be used for the exterior work of so important a structure as the Tower.

The entire west point of the Island consists of Lime Stone lying in thin horizontal strata with innumerable seams running in every possible direction, the stone is hard and brittle, and generally falls into small angular pieces under the hammer. This is the case chiefly with stones on the face of the Mountain.—There is however good reason to believe that if a Quarry was opened at a few hundred feet back from the edge of the Cliff a much better class of stone would be obtained, such as would be suitable for the construction of the Keeper's House and interior walls of the Tower.

No sand could be found at or near the point, but a good quantity of sea sand can be obtained 12 miles to the Eastward at Cape Henry, or Ellis Bay, and it is said at Mingan River 35 miles to the Northward there is plenty of fresh water sand.

Timber will have to be brought from a distance as the West portion of the Island appears to produce nothing except a Forest of dwarf spruce unfit for building purposes.

At the time we visited the Island there were several ponds of fresh water near the point, their appearance however did not indicate a constant supply—but about a mile and a quarter to the Eastward is a spring from which a large body of water issues, on this spring the Keeper's and others will chiefly have to depend.

CAPE ROSIER.

This point is about 36 feet over the level of the sea, and consists of Granwacke, Slate, Limestone, and a conglomerate of pebbles, covered with about 3 feet of loamy gravel; the Granwacke and Slate predominates, the Limestone occurs in blocks, generally of two thicknesses each, from two to nine inches, these blocks are from 30 to 50 feet apart; the Strata throughout is nearly vertical, but their upper edges present a fair surface with only a slight inclination outwards.

The appearance of the point and beach indicates that the rocks are rapidly decomposing, for this reason it was considered the most prudent course to locate the Tower fully 50 feet from the edge of the cliff, although for the assistance of outward bound vessels it is desirable to have the Light as far to the Eastward as possible.

The only objection to this location is the high land on the South and West sides, which will form a back ground much higher than the Light, this is however unavoidable as the Mountains are too far inland for any advantage to be taken of their superior height.

The light will be about 7 miles North from the extreme point of Cape Gaspé, 42 miles from the revolving Light on the South-west point of Anticosti; and 65 miles from the West point.

The Bay between Cape Rosier and Gaspé affords good shelter for vessels, except from Northwest winds, but a landing can only be effected by boats and small craft in calm weather.

No stone suitable for building purposes could be found along the cliffs with the exception of the detached ledges of Limestone before mentioned, but in a field about one half mile to the Southwest a good quality of limestone was observed, showing however a like shattered appearance to those on the West point of Anticosti, so far as we were able to penetrate with the imperfect tools at our command; still there is no doubt that stone can be obtained in the vicinity of a proper class for the construction of the Keeper's House and the interior of the Tower.

The Country to the Westward of the Cape will supply an abundance of Cedar Timber of good quality.

Sea sand of a sharp angular grain was found along the shore about a mile North of the Cape.

Fresh water sand was said to be abundant on a small River that empties into the Bay, but after walking fully a mile along its banks no appearance of sand was observed.

There are several small Creeks in the vicinity that will supply fresh water unless in very dry seasons when it will be necessary to go a mile to the North ward.

The Light on both Cape Rosier and West point of Anticosti should be at least 100 feet above the ground line, the former so as to show over the points to the Northward and be visible in clear weather from the deck of a vessel about 19½ miles distance.

The site of the latter being low its greatest range will not exceed 18 miles.

If decided to construct the Towers entirely of stone, a superior quality of crystalized grey Limestone can be procured at the Southwest point of Anticosti, at the same place where the stone for the Light-houses already built on the Island were obtained; and it is said a good class of sandstone may be obtained in the Bay of Gaspé.

POINT AMOUR.

The site proposed for the Light-house on this point is about 160 feet back from the water's edge, and 55 feet over the level of the sea, where on excavating from 3 to 5 feet in depth a flat ledge of Blue Limestone was found under which is a conglomerate of pebbles, shells, and hard red slate. The point is 29 miles N. by E ½ E from Point Ferrole, and 51 miles N. E. by N. from Point Rich on the Newfoundland Coast, 11½ from Wood Island, about 41 miles from Cape Norman. The Light will be open to the East and West at the full extent of its range, and will serve as a guide into Fortier Bay, it is said to be, and doubtless is, the best Roadstead in the Straits.

A temporary Wharf constructed at the N. E. corner of the Bay (by the Proprietor of a Fishing establishment there) will, if arrangements can be made, serve as a good place to land materials, &c., otherwise some difficulty may be experienced, as even in moderate weather it is not unattended with danger to attempt landing on the beach from a small Boat.

Although the site proposed for this Light-house is high, still its being visible at a great distance is so important, that I am fully convinced of the necessity of raising the Tower to a like height above the ground line as proposed for the others.

Limestone suitable for the interior walls of the Tower and Keeper's House can be obtained on and round the point, and a good class of closs-grained sandstone, either of a red or dark grey color may be procured either at Fortean Point 4 miles distant by water, or at Lance au Loup 3¼ miles by land, but the roads are bad, or at the North side of the Bay a distance of 3 miles along a rugged and in some places soft sandy beach over which horses could barely travel even without a load.

At about one-half mile to the north of the point, in the face of a high cliff, a stratum of sandstone, about nine feet in thickness, appears under a depth of thirteen feet of successive layers of slate, Granwacke and limestone, slightly covered with loamy gravel.

Stone taken from this place would be more expensive to quarry than at any of the others, but the cost of transporting them much less.

In the north-east corner of the Bay, about a mile and a quarter distant, was found a good quantity of sea-sand. Fresh water appears plentiful in the immediate vicinity. Timber for building must come from Canada, and even firewood will be scarce, the whole coast being a bare barren waste, with only occasional patches of dwarf spruce trees.

BELLE ISLE.

Access to a Light House on this Island will be attended with fully as much difficulty as that on the west point of Anticosti, the shores are bold and afford no shelter to vessels, a landing can, however, be effected with perfect safety in calm weather. Chateau Bay, on the Labrador coast, about 15 miles north-east of the Island, and Quirpon Bay, on the Newfoundland coast, about 25 miles to the south, are the nearest accessible places in case of a storm, in both of which good anchorage and shelter may be found.

The site selected for the buildings is near the extreme south point of the Island, on a flat surface of greenstone rock, at about 420 feet over the level of the sea, and 800 feet back from the shore. The mountain is steep on all its sides, but by landing in a small bay near the south end of the Island, thence following the circuitous route of a ravine that inclines inwards and upwards, the summit can with a little perseverance be reached from this point. This island in every direction appears to consist of a range of bare, rocky hills, without a tree, shrub or grassy spot being visible on their rugged surfaces, I was however informed that there are a few trees somewhere in the interior.

The light, from its elevated position, will, in clear weather, be visible at a great distance in every direction, except where shaded by the still higher mountains lying towards the north-east.

The height is, however, in some respects objectionable when viewed in connection with the fogs that occur on the Banks and Coast, but although a lower position would doubtless have been preferable, the locality scarcely admitted of a choice without permanently diminishing the "range" of the light in either, or both, an easterly and north-westerly direction; this was considered to be a greater evil than the risk of the light being occasionally obscured by fog, the more especially as it is well known that even dense fogs are sometimes limited in height, by the fact, from the mast-head of a vessel, objects can frequently be seen at a distance, while the deck is completely enveloped in a dark haze.

The Light will be about 21 miles from York Point, Labrador Coast, 14 miles from the extreme point of Cape Bauld, Newfoundland Coast, and 25 miles from Cape Norman.

The Tower should be from 45 to 50 feet in height, so as to over-top the mountains lying on the north-west side of the Island.

The top of the Mountain, as already stated, consists of a close-grained, compact class of greenstone, very hard and brittle, in nearly vertical strata. About one-third of the height downwards, is a dark grey, spotted granite, approximating to gneis, lying chiefly in large detached masses. Towards the bottom is a clear, close-grained, light green granite, in parallel horizontal seams from 12 to 40 inches apart, resembling in appearance a regular series of strata. Either class of stone mentioned is well adapted for building purposes, but all of them will be expensive to work, especially for the outer portion of the Tower, still it is believed that stone taken from any other locality would cost more before they could be landed on the spot where they are required.

The nearest place where sand can be obtained will be Chateau Bay or Quirpon Bay.

The timber for building, also firewood or coals must be brought from a distance.

A supply of fresh water is likely to be obtained from several small lakes situated a short distance in the interior, the nearest, with reference to the proposed Light House, is quarter of a mile distant, from three to four acres area, 230 feet above the sea; the next, half a mile distant, from four to five acres area, 200 feet above the sea; and a third, three-fourths of amile distant, from twelve to fourteen acres area, and about 150 above the sea.

The highest of these lakes and ponds will, doubtless be dry towards autumn, but appearances justify the conclusion that the largest contains water throughout the year.

Having thus given a description of the several locations examined with the view to the immediate erection of Light Houses, I beg shortly to direct attention to those already built, in order, if possible, to avoid in the new structures some of the evils very justly complained of in the old ones.

On examining the Light House Towers on the south-west and east points of Anticosti, both were found to be built of the class of grey limestone before described, the interior of the walls consisting of rubble work, and the interior of well dressed cut stone, originally laid throughout in common lime mortar, the outer face having a considerable batter from bottom to top, and the inside of the building divided into several stories which are fitted up for the Keeper's dwelling.

It will at once be seen that some of these arrangements are objectionable, among which might be mentioned the following, viz:—1st. Fitting up and using the Tower for Dwelling House exposes the entire structure to accidental fire, a risk that might be avoided by having a separate Building for the Keepers, with only a watch room in the story below the Lantern. 2nd. It is well known that in thick walls, laid in common lime mortar, whatever its quality, may by the process of setting, or induration is slow, so much so that walls built for many years on being taken down, the mortar in the interior has been found to be still soft; and that when building operations are continued late in the season the mortar is frequently destroyed by the winter's frost, especially in exposed positions. Such appears to have been the case in the Light-houses alluded to, as in many places the joints between the ashlar work was entirely open, from 3 to 6 inches deep, and in several places a small twig, by a slight pressure, was pushed in much further. The absence of mortar, together with the inclined surface of the Tower, will, in a great measure, account for the leakage and damp complained of during a severe storm of wind and rain.

It is believed these unpleasant results might be avoided and the stability of the structure very much augmented by using cement mortar throughout the entire thickness of the walls, or otherwise, by using cement and well slacked lime in equal proportions.

2nd, *Straits of Belle Isle, &c.*

The descriptive Naval Maps and Sailing Directions published by the Admiralty from the survey of Captain Bayfield and others, shew that with few exceptions there is is sufficient depth of water throughout the Straits of Belle Isle, with Harbors of Refuge and Roadsteads on the Labrador Coast, that afford good anchorage and shelter for vessels of any class. On the Newfoundland coast no good anchorage can be found for large ships except in St. Margaret's Bay, near the west end of the Straits; but there are several Bays in which small craft can find shelter: Captain Bayfield, however, does not appear much in favor of the Straits as a navigable channel, chiefly on account of icebergs which float in from the Northward during North-easterly winds, the presence or absence of which, he states, cannot be depended on. But if these bergs accumulate only in August, as stated, or even in July and August, the channel is still clear for the outward passage of the Spring Fleet, and for both outward and inward bound vessels in the fall, which in itself would be a matter of sufficient importance to warrant an expenditure in the erection of Light-houses, commensurate with the advantages likely to result in the great facilities and security afforded to the rapidly increasing commerce of the country.

It will also be remarked that Captain Bayfield, in reference to the navigation of the Straits, chiefly alludes to the "lead;" the soundings, he states, are in some cases "perplexing." Although this be the first and only source of a prudent mariner in approaching an uncertain or unknown coast, it does not follow the "lead" must entirely be depended on, especially in a channel, the safe and facile navigation of which would justify the erection of proper Lights and warnings, such as would enable the benighted seaman at once to determine his position without the necessity of slackening the speed of his vessel, or lying to', and depending on the uncertain soundings. It is therefore believed that a parallel scarcely exists between the navigation of the Straits, assisted by lights, and in its present state.

The correctness of these views are fully confirmed by Captains and Masters of vessels who have passed directly through the Straits, and of others who have had occasion to avail themselves of the shelter afforded by the various Bays and Roadsteads on the coast.

While in the Straits I had the opportunity of conversing with several of the Jersey fishermen, an intelligent class of persons, who for many years have resided on the Labrador coast; all of them agreed that the ice was generally clear of the Straits some time in May, but this year it remained until the 4th of June, being the latest season they had ever known, and that icebergs in July or August were frequently driven in from the North during a long continuation of North-easterly winds; some seasons these bergs are said to be more numerous than others, but seldom so large or numerous as to render the Straits unnavigable.

The tides are said to be regular, except during strong North-easterly gales, when a current sets in towards the west.

Fogs were stated to be of frequent occurrence, but not more so than on the Gulf and South Channel.

That the number of vessels passing through the Straits were annually on the increase, and that nearly all the French Trading vessels that come to Quebec pass through the Straits, and the north Channel between the Island of Anticosti and the Coast of Labrador.

My own experience of the Straits consists of only five days, from the morning of the fifth to the evening of the 9th June. During the whole of this time the weather was extremely mild, and the surface of the sea as smooth as any of our inland Lakes in a mild summer day; although so short an acquaintance, and under so favorable circumstances by no means affords sufficient data on which to base an opinion for any long period of time, still it shows there are seasons and times when the Straits can be navigated with equal certainty as any portion of the St. Lawrence, and gives good reason to believe an intelligent seaman's knowledge of the effect of prevailing winds will enable him to take advantage of this channel at the proper time with less risk of coming in collision with Fishing Vessels off the Grand Banks, for two-thirds of the navigable season, than the South channel by St. Paul's and Bird Rock Islands, and it being at the same time nearly 250 miles shorter, which to vessels that make two voyages to and from England would fully equal 1000 miles sailing distance, or admit of either route being taken that suited the wind for the time being instead of beating round in the Gulf as at present, which might allow a vessel, now making two voyages, in some cases to make three during the season.

I beg, therefore to recommend to the Commissioners not only the speedy completion of the Light Houses for which an appropriation has been made, but the erection of others at certain projecting points, Islands and head-lands along the River, Gulf anc Straits, confidently looking forward to the time at no distant period when under a well organized system of Lighting, the hitherto exaggerated dangers of the River and Ocean route of the St. Lawrence, will be found to a good ship, well manned, to exist more in imagination than reality.

In connection with this subject I beg to state that Fortean Bay was carefully examined with reference to the construction of a coaling station for Atlantic Steamers. This Bay is situated about 53 miles from the east entrance of the Straits and 8 miles from the west end; it is about 4 miles long, fully 3¼ miles deep at its western extremity, and 2 miles at its eastern end, near to which is the Light-house on Point Amour;—Captain Bayfield describes it the best Roadstead in the Straits, "Where vessels may anchor anywhere in the Bay, in from 10 to 13 fathoms water, "over a sandy bottom that holds well, but the best anchorage is in the N. W. side "of the Bay, opposite the Fishing Station, one-third of a mile off shore and nearly "one half-mile within a spit of rock which extends about 120 fathoms off the west-"ern shore and must be avoided in going in, by not going nearer to the shore than "one-fourth of a mile, or than 10 fathoms till it is past."

About 1600 feet inside of the spit of Rock mentioned, adjoining a flat piece of land between two Fishing Stations is considered the best location for a wharf, as every facility is afforded for vessels of the largest class entering or leaving, and the place is in a measure land-locked, being protected from North-east, North, and North-west winds—the water outwards deepens rapidly, at 50 feet from the shore 12 feet water was found, at 300 feet out 29 feet, and at 400 feet 36 feet water.

The wharf can be constructed so that vessels can lie up stem or stern towards the shore or along the outer end. On the beach might be erected the necessary coal sheds, from and to which a line of Railway might be laid along the top of the wharf for the purpose of taking out and in the supplies. Coal could be procured at Sydney, Nova Scotia, about 360 miles distant.

Fortean Bay being nearly 800 miles from Quebec or about one-quarter of the entire sailing distance between Liverpool and Quebec, a coaling station there would allow a steamer to take in at least ¼ less coal from England, thus a vessel could leave either in lighter trim with a speedier passage, or with a more valuable cargo; presuming the former to be the case with a proper class of steamers. Fortean Bay and Liverpool would be within 7 or 8 days sailing distance of each other, hence with a line of telegraph from Quebec to Fortean Bay as suggested "by a Merchant" we might have during the navigable season the earliest possible intelligence and communication to and from Europe and other portions of the globe.

3rd, Points at which other Light Houses are desirable.

1st. Bird Rocks in the Gulf.
2nd. Cape Ray, Newfoundland coast.
3rd. Cape St. George do do.
4th. Point Rich, do do.
5th. Cape Norman near East end of Straits, on Newfoundland coast.
6th. North point of Belle Isle, or Table head point, Labrador.
7th. Great Macattina Island, Labrador.
8th. Cape Whittle, do.
9th. Natashquan, do.
10th. North point of Anticosti.
11th. Seven Islands.
12th. Cape Chatte, Rimouski.
13th. Manicougan Shoal.
14th. Mille Vache Point.

With good Pier Lights at Rimouski, Rivière du Loup, Rivière Ouelle, L'Islet, Berthier on the South shore, and Eboulements and Malbaie on the North shore.

The most important of those above enumerated are, The Bird Rocks, Cape Ray, Point Rich, Cape Norman, Cape Whittle, Cape Chatte, and Manicougan Shoal.

At each station should be a fog whistle or cannon in case of fogs, and a provision post for the accommodation of ship-wrecked mariners at such places as are remote from a settled part of the country.

I have the honor to be, Sir,
Your obedient servant,
(Signed,) JOHN PAGE,
Chief Engineer Public Works.

APPENDIX (I.)

Instructions for J. B. Jervis, Esq.,

OFFICE OF PUBLIC WORKS,
QUEBEC, 12th August, 1854.

SIR,—As you have been pleased to signify your willingness to undertake the duties connected with the location of the contemplated line of Canal between the river St. Lawrence and Lake Champlain, in the performance of which the Commissioners of this Department were most desirous to have the benefit of the counsel and experience of a gentleman of such admitted high standing, it now becomes necessary that you should be informed as to the points upon which your opinion and advice are more immediately sought for.

The advantages to this Province which are calculated upon from the construction of this Canal, are fully set forth in the annual Report of this Department to the Legislature, for the year 1852, in pages 32 to 38; a copy of this Report is herewith transmitted. By reference to it you will perceive that the objects aimed at, are

To complete the chain of Canals already in use, and to render them profitable as well as a convenience to the Province.

To enable our Canals to compete successfully with the Erie Canal, and the Railways on the South bank of the St. Lawrence, in the transport of property to and from the Atlantic seaboard in the United States, and the Western States and Canada.

To furnish a cheaper, quicker (and from reduced transhipments) a more desirable route to the great trade which passes between tide water in the Hudson River, the Railways in New England, and the city of New York on the one hand, and the Western States and Canada on the other, and thus to bring traffic and tolls to the St. Lawrence Canals, which, by the competition of the Oswego and Erie Canals, and the Ogdensburg and other railways, and the want of an efficient connection between them and Lake Champlain, obtain scarcely any of the transit trade between the Atlantic and the Western States or Canada.

To enhance the value of one of our great staple exports, (Lumber,) by furnishing a direct, cheap, and capacious connection between the great lumbering districts of the Ottawa, the upper and lower St. Lawrence, and the greatest lumber mart in the world, that of Albany and Troy.

By connecting Lake Champlain with the St. Lawrence, upon an efficient scale to open the districts upon that Lake to the sea, via Quebec, and afford them a shorter and cheaper route for imports of coal, iron, salt, fish, oil, &c., which articles can be had down at Quebec at cheaper rates than at any other American Port, in consequence of the larger amount of tonnage entering inwards in ballast.

Such were some of the principal objects considered attainable by the construction of this work in 1852, when the report alluded to was written, but the Commissioners are of opinion that the altered circumstances under which the Province will be placed by the passing of the Reciprocity Act, and the opening of the River St. Lawrence to our American neighbours, afford increased and strong grounds for belief in the great importance of this work for the developement of the resources of the country.

Your views upon the points embraced in the foregoing are particularly requested; especially with respect to the trade of the great West, its Channels, whether in use or in course of construction; the changes that are likely to take place in a great portion of it, as regards its transport Eastward by the Lakes and Rivers, instead of down the Mississippi, upon the completion of the several lines of navigation and Railways leading from the interior to those Lakes; and the probable proportion of it which may be induced down the proposed Canal, for the supply of the Eastern States, the West Indies, &c., &c.

Your opinion, also, as to how far such trade may be interfered with, or competition formed by the several lines of Railway North and South of the Lakes and River now made, or in course of construction, will also be considered valuable, not only from your intimate knowledge of that trade and section of country, but as President of an important Railway there.

The next point on which your well considered opinion is requested, is the general location of the line, and particularly, its terminus on the St. Lawrence,—upon this much difference of opinion exists, traceable in a great measure to the separation of local interests of the several sections of the Province.

As the Commissioners desire that this question shall be decided unbiassedly, and solely upon grounds connected with the accommodation and facilities for the contemplated trade, together with the engineering difficulties or otherwise, which may be founed to exist; it is well merely to state, that some advocate the line to start from some point on the Beauharnois Canal, thereby as they suppose, to carry such a level as would overcome the summit between the two waters at the least expense, others urge the selection of Caughnawaga, opposite the head of the Lachine Canal, as being the place most convenient for the Ottawa trade. The interests of Montreal naturally desire its commencement at some point opposite, or, a little below that city, the population, trade, and importance of which must necessarily command due attention ; and finally, there is a party who consider that the route of the Ricelieu River should be that decided on.

The advantages and disadvantages of each of these propositions, will, no doubt, be duly perceived and weighed well by you, prior to your coming to a conclusion.

The third point to which your attention is requested, is, as to the depth of water and dimensions of the Locks and Canal, which it may be in your opinion, the most advisable to adopt, and an approximate estimate of the cost of the work, the nature of the trade to be calculated on,—the class of vessels suited for it,—the capacity of the present Canals, and the capabilities of the harbours on the Lakes, will, no doubt, meterially govern your decision on this point, which is more important, as, by the scale of this canal, will be determined also that of the enlargement or new branch of the Welland Canal; a work which it is believed must be undertaken at no distant day.

Besides the foregoing, the Commissioners will be obliged by receiving your views and advice upon any other branch of the question that you may think necessary to touch on.

It is most desirable that your Report should be received at as early a day as the efficient discharge of the duty will permit, with a view to which you will make such arragements as you may deem expedient.

I am Sir,
Your obedient servant,

(Signed,) J. CHABOT,
Chief Commissioner of Public Works.

J. B. Jervis, Esq.,
Civil Engineer.

APPENDIX K.

STATEMENT of UPWARD Movement in Tons on the St. Lawrence Canals, up to 31st July, 1853 and 1854.

	1853.	1854.
Number of Vessels	1153	1298
Tonnage of do	76218	96958
Number of Steamers	451	511
Tonnage of do	45762	50632
Number of Passengers	10629	18320
Tons of all Property moved	57091½	69312
Number of days of navigation	79	79
Navigation opened	April 30.	May 1.

STATEMENT of DOWNWARD Movement in Tons on the St. Lawrence Canals, up to the 31st July, 1853 and 1854.

	1853.	1854.
Number of Vessels	1038	1127
Tonnage of do	77653	96212
Number of Steamers	455	517
Tonnage of do	46610	50964
Number of Passengers	8819	8280
Tonnage of Property moved	81471½	101637
Number of days of navigation	79	79

SUMMARY of UPWARD and DOWNWARD Movement in Tons on the St. Lawrence Canals, to the 31st July, 1853 and 1854.

	1853.	1854.
Number of Vessels	2191	2425
Tonnage of do	153871	193170
Number of Steamers	906	1028
Tonnage of do	92372	101596
Number of Passengers	19448	26600
Tons of all property moved	138563	170949
Number of days of navigation	79	79

[APPENDIX F.—The following Tables were omitted on page 78, after Mr. Rigney's letter.]

Estimate of the Expense of the Improvements proposed to render the waters navigable for Steamboats and other craft, from the Lock on the Scugog River, at the Village of Lindsay, to Buckhorn Dam, including the general improvement of the said Dam, and the repairs and rebuilding of part of Buckhorn Bridge.

Description of Work and Prices.	Amount.		
	£	s.	d.
Chopping and clearing 100 rods long, 12 rods wide—equal to 7½ acres (all in water) at £10 per acre, for two New Cuts on Scugog River	75	0	0
Excavation of 500 yards x 20 yards x 4 feet—equal to 13333 cubic yards, at 3s. 9d. per yard, (must be dredged)	2499	18	9
Grubbing in water 400 square, at £1 per rod	400	0	0
Total for two Cuts on Scugog River	£2974	18	9
Removing walls of old Lock, each 200 feet long, including wings, x 17′ high x 10′ feet wide = 2518 yards at 1s. 3d. per yard	157	7	6
Removing old floors, mitre sills, and gates	10	0	0
do breast of Lock 33′ x 10′ x 9′ = 100 yards, at 1s. 3d. per yard	6	17	6
Total to remove old Lock	£174	5	0
New wooden Lock at Bobcaygean.—Excavation bottom of Lock 150′ x 33′ x 1′ = 184 yards rock, at 7s. 6d. per yard	69	0	0
Building 2 side walls of chamber 132 feet long x 17 feet high = 4488 feet, face timtime, (pine,) at 1s. 6d. per foot	336	12	0
Cross ties, 4488 feet, (pine,) at 1s. per foot	224	0	0
Longitudinal ties for chamber, 4488 feet, (pine,) at 1s. per foot	224	0	0
4 Wings, each 30′ x 17′ = 2040 feet face, (pine,) at 1s. 6d. per foot	153	0	0
Cross ties for wings, (pine,) 2040 feet, at 1s. per foot	102	0	0
Longitudinal ties for do, 2040 feet, at 1s. per foot	102	0	0
768 cubic yards Stone for filling, at 10s. per cubic yard	384	0	0
1536 cubic yards Puddling, at 5s. per cubic yard	384	0	0
Breast work of Lock, 287 feet, (pine,) at 1s. 6d. per foot	22	5	6
Cross ties for breast, 297 feet, at 1s. per foot	14	17	0
Longitudinal ties, 297 feet, at 1s. per foot	14	17	0
4608 feet 3 inch plank for Plank top of Lock, at 6d. per foot, fixed	115	4	0
42 fox wedge Iron Bolts, each 2 feet long, equal to 260 lbs, including wedges			
42 fox Wedges for ties, 1 inch round, iron, equalto 168 lbs.			
Ray Bolts for the upper courses, say			
2400 lbs. 1 inch round iron, total 2828 lbs., at 8d. per lb	94	5	4
1200 Tree nails, 2 inch diameter, at 3d. per lb.	15	0	0
Erecting Pumps and Pumping	250	0	0
Coffer Dams, and again removing them	300	0	0
Lock Gates and Mitre Sills complete	500	0	0
Total for a new Wooden Lock, complete	£3305	0	10
Estimate for a new Stone Lock of the same dimensions, complete	£4278	15	0
Difference between the first cost of a Stone Lock and a Wooden Lock, at Bobcaygean	£973	15	10
Big Dam at Bobcaygean, length 1274 feet.—1274 feet Oak Capping for Dam, at 1s. 8d. per foot	106	3	4
107 Iron Bolts 1¼ x 2 inches long each, equal to about 1872 lbs., at 8d. per lb., fixed	62	8	0
5096 lineal feet Pine Timber, fixed in work, at 10d. per foot	212	6	8
428 Ray Bolts 1 inch round, iron, 2 feet long, equal to about 1072 lbs, at 8d. per lb., fixed	35	14	8
1272 Tree Nails, each 2 feet long x 2 inch, at 3d per nail	15	18	0
425 pieces Pine to sustain longitudinal pieces under sheeting, equal to 5950 feet, at 10d. per foot	247	18	4
15288 feet sheeting for Dam, at 5d. per foot superficial, fixed in work	318	10	0
1500 lbs. Spikes, at 6d. per lb	37	10	0
Carried over	£ 1036	00	00

Estimate of the Expense of the Improvements on the Scugog River, &c.—(*Continued.*)

Description of Work and Prices.	Amount.		
Big Bobcaygean Dam.—(*Continued.*)	£	s.	d.
Brought over	1036	9	00
Removing about 2000 yards of old puddle, or rather course gravel and stone, from face of Dam, at 3s. 9d. per yard	375	0	0
Replacing the above with about 2000 yards of good new puddle, at 3s. 9d. per cubic yard	375	0	0
Total to complete Big Dam	£1786	9	0
Little Dam at Bobcaygean, length 260 feet.—To Cap, Sheet, and Puddle in the same manner as the Big Dam (as described above) this Dam	250	0	0
Total amount to complete both Dams at Bobcaygean	£2036	9	0
New Slide at Bobcaygean for Timber.—7 Sills, each 32 feet long, equal to 224 feet, at 10d. per foot	9	6	8
14 Posts, average 5 feet long each, equal to 70 feet, at 10d. per foot	2	18	4
7 Tops for Bents, each 32 feet long, equal to 224, feet at 10d. per foot	0	17	6
1860 feet Pine for bottom of Slide, at 10d. per foot	77	10	0
240 feet four inch Plank for sides, fixed, at 10d. per foot	10	0	0
21 fox wedge Bolts, 2 x 1¼ inches, equal to 187 lbs., at 8d. per lb	6	4	8
20 lbs. Spikes, at 6d. per lb	0	10	0
Boring 21 holes in rock to bolt down floor of Slide at 1s. 3d. per hole	1	6	3
360 feet Pine for Apron of Dam, at 10d. per foot	15	0	0
60 Iron Bolts, equal to 247 lbs., at 8d. per lb	6	4	8
134 yards Stone for filling of slide, at 2s. 6d. per yard	16	15	0
250 feet Sheeting, to retain stone in slide, at 10d. per foot	10	8	4
Cheeks, Stop-log, Platform and Windlass for Slide	15	0	0
Total for a new Slide at Bobcaygean	£181	8	1
Repairs required on the Canal Cut above the Lock at Bobcaygean, length of Cut 530 feet.—840 cubic yards of timber, earth and stone, to be removed, at 1s. 3d. per yard	52	10	0
3180 feet face timber, pine, at 1s. 3d. per foot	198	15	0
1890 feet cross ties, at 10d. per foot	78	15	0
3180 feet longitudinal back timber, at 10d. per foot	132	10	0
840 yards c. filling with puddle and stone, at 2s. 6d. per yard	105	0	0
Total to put the Cut in good repair	£567	10	0
16 Snubbing posts for Canal and Lock, £16 per	16	0	0
Total	£583	10	0

Estimate Repairs, and Re-building part of Buckhorn Bridge across Buckhorn Dam.

4 Sills, each 25 feet long, pine, 12 x 12 inches, at 1s. per foot	5	0	0
12 Upright Posts, each 12 feet long, 12 x 12 inches, at 1s. per foot	7	4	0
2 Oak Posts, each 12 feet long, 12 x 12 inches, at 1s. 8d. per foot	2	6	8
4 Cross Pieces, each 18 feet long, 12 x 12 inches = 12 foot, at 1s. per foot cubic	3	12	0
4 pieces Oak for Cut-waters, each 20 feet long, 12 x 12 inches, rounded on upper side, equal to 80 feet, at 1s. per foot	6	13	4
1700 feet Sheeting for Cut-waters, at 5d. per foot, tree-nailed	35	8	4
16 Braces, 6 feet long, each 6'' x 6'' = 96' lineal, at 6d. per foot	2	8	0
200 feet lineal for top hand-rail, 4'' x 4'', at 6d. per foot	5	0	0
50 Balisters or Posts for hand-rail, 4' x 4'' x 4'', at 6d per foot	5	0	0
Carried forward	£72	12	4

ESTIMATE of the Expense of the Improvements on the Scugog River, &c.—(*Continued.*)

DESCRIPTION OF WORK AND PRICES.	AMOUNT. £	s.	d.
Estimate of Repairs and Re-building part of Buckhorn Bridge, &c.—(*Continued.*)			
Brought forward	£72	12	4
576 Cross-braces for hand-rail, at 6d. per foot lineal	14	8	0
1500 feet 3 inch Plank for bridge, 5d. per foot superficial, tree-nailed	31	5	0
8 Iron Straps, 20 lbs. each, equal to 160 lbs., at 8d. per lb, fixed	5	6	8
8 Bolts, to secure hand-rail, at 5s. each	2	0	0
Total to repair and partly re-build Buckhorn Bridge	£125	12	0
New Swing Bridge at Bobcaygean, Truss principle	£250	0	0
Estimate of repairing about one-half of the Buckhorn Dam and re-building the remainder—total length of Dam 558 feet.			
54 new Bents, equal to 6480 feet lineal, pine timber, at 1s. per foot	324	0	0
1368 feet lineal pine timber for repairs of the old part of the Dam, at 10d. per foot lineal, fixed	57	0	0
5000 feet lineal Scantling, 6 x 6 inches, at 6d. per foot, fixed	125	0	0
13000 feet Sheeting, 3 inch pine plank, tree-nailed, at 6d. per foot superficial	325	0	0
300 yards (cube) Stone, for filling the Dam, at 5d. per yard	75	0	0
392 feet Oak Capping for Dam, at 1s. 8d. per foot	32	13	4
166 feet Oak Capping laid on pine about one foot high average, running in on the land to keep up the level and bolted to the rock, at 5s. per foot	41	10	0
17 fox wedge Bolts, 2½ feet long, equal to about 289 lbs., at 8d. per lb	9	12	8
30 Bolts with Nuts for capping equal to 430 lbs., at 8d. per lb	15	3	4
886 lbs. Spikes, at 6d. per lb., fixed	22	3	0
162 fox wedge Bolts for bents, equal to 1400 lbs., at 8d. per lb	46	13	4
508 Ray Bolts, 1 x 2 feet long, round iron, equal to about 2670 lbs., at 8d. per lb	89	0	0
Removing about 700 yards of gravel and stone from the upper side of the Dam, at 5s. per yard	175	0	0
New puddle required for the Dam, about 700 yards, at 5s. per yard	175	0	0
Total amount to put the Dam in good order	£1512	15	8
To construct a new Slide in Buckhorn Dam, similar to the one built at Bobcaygean, (see details of Bobcaygean Dam)	£200	0	0

RECAPITULATION.

	£	s.	d.
Two new Cuts to avoid bad turns on Scugog River	2974	18	9
Removing Walls of old Lock at Bobcaygean	174	5	0
Erecting new Wooden Lock at do	3305	0	0
Raising, puddling and repairing Big Dam at do	1786	9	0
Raising, puddling and repairing Little Dam at do	250	0	0
Building new Slide in Dam at Bobcaygean	181	8	1
Repairing old Cut above Lock at do	683	10	0
Erecting a new Swing Bridge at Lock at do	250	0	0
Repairing part and Re-building part of Buckhorn Bridge	125	12	0
Raising, Repairing part, and Re-building part of Buckhorn Dam	1512	15	8
Constructing a new Slide for timber at Buckhorn Dam	200	0	0
	£11443	18	6
ADD -10 per cent. for Contingencies	1144	7	10
Total to complete the Works as contemplated	£11548	6	4
ADD—If the Lock at Bobcaygean is built of Stone £973 15 10			
10 per cent. for Contingencies 97 7 7			
	1071	3	5
	£12619	9	9

(Signed,) JAMES RIGNEY.

TRENTON 12th October 1853

The following is a **Table of Soundings** taken in the Scugog River, commencing at the lower Mitre Sill of the Lock of this River (opposite the Village of Lindsay) and extending down a distance of two hundred rods to deep water, on the 16th September, 1853. On this date there was three feet water on the lower Mitre Sill. A limestone rock bottom all the distance.

Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
3	2	3	1	2	10	3	8	3	9	3	6	3	0	3	8	4	0	3	8	3	6	4	0	3	8	3	6	4	0	4	8	3	6	3	0	2	9	3	0
3	0	3	0	3	0	3	0	3	0	3	0	3	0	3	0	2	6	3	6	3	6	3	0	3	0	3	0	3	4	3	2	3	6	3	8	3	6	3	6
3	8	3	6	3	6	3	[illegible]	3	8	3	8	3	[illegible]	3	4	3	6	3	6	4	0	4	0	4	0	4	4	4	6	4	8	4	6	4	6	5	0	5	0
5	0	4	6	5	0	5	[illegible]	5	0	5	6	5	6	5	[illegible]	5	6	5	6	5	0	5	6	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0
4	6	4	6	3	11	4	6	4	6	4	0	4	0	4	0	3	8	4	0	4	6	4	6	4	0	3	9	3	0	3	0	3	6	4	0	4	0	4	0
4	6	4	6	4	8	4	8	5	0	3	6	4	0	4	0	4	6	4	6	4	6	4	6	4	0	4	6	3	0	2	4	2	6	3	0	3	6	3	6
3	0	3	0	3	6	4	0	3	6	3	0	3	0	3	6	3	9	3	6	3	6	3	9	3	6	3	6	3	9	4	0	4	0	4	0	4	0	4	0
4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	0	4	3	4	6	4	6	4	6	4	0	4	0	4	0	4	0	4	0	4	0	4	0
4	0	4	6	4	0	4	0	4	6	4	0	4	0	4	0	4	6	4	6	3	11	4	6	4	6	4	6	4	6	4	8	4	6	4	6	4	6	4	0
4	0	4	6	4	0	4	0	4	[illegible]	4	0	4	6	4	6	4	0	4	0	4	6	4	6	5	0	5	0	4	11	4	6	4	6	4	6	4	6	4	6
4	8	4	5	4	0		0	4	0	3	9	3	6	3	4	3	4	3	4	3	4	3	4	3	4	3	0	3	0	3	0	3	0	3	6	3	6	3	6
2	11	3	9	3	9	3	9	3	0	3	6	3	4	3	4	3	6	3	0	2	11	2	11	3	6	3	6	3	6	3	6	4	0	3	6	3	9	3	4
3	6	3	6	3	0	3	2	3	2	3	6	3	6	4	6	4	6																						

Note.—The above soundings were taken on the above date in company with James Rowe, Esquire, of Whitby, and three other persons, and in addition, I took myself, and the same men afterwards, over two hundred soundings in the same distance and place, and found the result the same as near as possible, ranging from two feet ten inches to four feet six inches, and a few places four feet nine and five feet: very few places of the latter depths.

(Signed,) JAMES RIGNEY.

Trenton, 12th October, 1853.

F. Braun

REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS

FOR THE

YEAR ENDING 31st DECEMBER, 1855:

FURNISHED

IN ACCORDANCE WITH THE PROVISIONS OF THE ACT,
9 VICTORIA, CAP. 37.

Printed by order of the Legislative Assembly.

TORONTO:
PRINTED BY JOHN LOVELL, CORNER OF YONGE AND MELINDA STREETS.
1856.

GENERAL REPORT.

To His Excellency, Sir Edmund Walker Head, *Bart., Governor General of British North America, &c., &c., &c.*

May it please Your Excellency,

In accordance with the provisions of the Act, 9 Victoria, chapter 37, section 14, the undersigned, Commissioners of Public Works, submit to Your Excellency the following General Report, which they have had prepared for the purpose of being laid before Your Excellency and the Two Houses of the Legislature.

This Report, shewing the state of the several works under the control of the Department of Public Works, and the amounts of receipt and expenditure thereon, is accompanied by the usual statements, viz:

No. 1.—Statement of those works which yield revenue shewing the cost of their construction to the first of January, 1856, the expenditure on the same since the date of the last Report, and the cost of repairs, maintenance, and management.

No. 2.—Statement of the works from which no revenues are derived; shewing the amount of public moneys expended on them up to 1st January, 1854, and of the outlay from that period up to the first of January of the present year; and defining those which should be given up.

No. 3.—Statement of the expenditure since the date of the last exhibit, on the erection, repairs, and maintenance of light-houses, buoys, &c., &c.

No. 4.—Statements of the amounts paid on the awards made for damages, &c., on each work, since the last Report; shewing also the amounts paid to the Arbitrators or Commissioners, for services and expenses.

No. 5.—General statement, shewing the total amounts expended by the Department of Public Works, as detailed in the foregoing statement.

No. 6.—Statement of water-power and lands leased and sold, on, or in the vicinity of the lines of the several Canals or other public works; with the names of the lessees and purchasers, the machinery erected or proposed, and the amounts of the sales and rents to the first of January, 1856.

No. 7.—Statement shewing the balance of appropriation available for expenditure on the respective works, from the first of January, 1856.

WELLAND CANAL.

The unusual accumulation of ice on Lake Erie delayed the opening of this Canal until the sixteenth of last April, being about a fortnight later than usual. The navigation was terminated by frost on the twelfth of December. The short interruption (of a few hours) to the trade during the past season, was caused by the substitution of new gates for others, which were either decayed or damaged by vessels. The year 1854 afforded a shorter season of navigation than any previous year; but the number of vessels passed during that season exceeded by 126 those passed in 1855.

Since the last Report, the work of raising and strengthening the embankments, and protecting them with stones and gravel, has been steadily advanced;

and a considerable amount of dredging has been done; by all of which work vessels drawing ten feet of water have been enabled to pass through the Canal.

The revenue from the work for the past year, contrasted with that of previous year, stands as follows:

Amounts collected at

	1854.			1855.		
Port Colborne	£31,885	0	4	£35,645	17	6
Port Robinson	1,216	18	8	1,386	18	2
Port Maitland	395	16	8	410	4	2
Dunnville	2,204	7	3	1,514	3	2½
St. Catherines	550	5	5	503	12	2
Dalhousie	14,439	5	4	14,968	9	8
	£50,691	13	8	54,429	6	0½
Water Rents	2,097	15	4	2,212	2	10
Land Sales	1,098	6	5	72	16	2
Fines and Damages levied	162	7	6	391	7	6
	£54,050	2	11	£57,105	12	6½

The Canal, generally, is in a good and efficient state of repair; and an ample supply of new gates to meet any casualty is on hand, and distributed in suitable places along the line.

The benefits anticipated from the lighting of the Canal with gas, and from the construction of a second tow-path to Thorold, are realized.

The Superintendent reports that, with an annually increasing trade, the supply of water from the Grand River is annually decreasing. This fact was strongly dwelt upon in the last Report from this Department.

The principal works during the past season, independent of those of repair and maintenance, have been those of the enlargement of Port Colborne harbor; in the prosecution of which much inconvenience, delay, and risk were incurred, owing to the harbor being frequently over-crowded. The work of deepening and widening, to admit of the supply for the Canal being taken direct from Lake Erie—a work of paramount importance, owing to the insufficiency of the Grand River as a supply becoming every year more and more apparent, as already stated—was also carried forward; but the expenditure on this, as well as on the works generally, has been much restricted, in consequence of the existing money pressure. A more vigorous prosecution of it on the opening of spring will be indispensable, and has been provided for by the Contractor, in considerable preparations and additions to his dredging machinery, &c., &c. As the balance of the appropriation for these works, however, will be sufficient for the demand of the current year, it is not proposed to apply to the Legislature for a further grant during the present Session.

The undersigned take this opportunity of repeating that, so soon as the financial position of the Province will admit of it, it will be highly desirable that the capabilities of this Canal should be largely increased, by the construction of a second or branch line from Lake Ontario to above Thorold, and by having all the widening and deepening of the Canal through to Lake Erie effected—which will be necessary for the adoption of the waters of that Lake as the summit-level of the Canal. The precise line and extent of these improvements can be seasonably decided on when the means of carrying them out are placed at the disposal of Government: and until these points are settled, especially that involving the dimensions, the undersigned do not consider it expedient to press the construction of the work of the weigh-lock recommended in their last Report.

ST. LAWRENCE CANALS.

The four short canals hitherto comprised and referred to in previous reports, under the head of the "St. Lawrence Canals," namely, the Galops, the Point Iroquois, the Rapide Plat, and the Farran's Point Canals, were opened on the twentieth of April, and continued throughout the season, with ordinary repair, in efficient working order, until closed by ice on the fifteenth of last December; thus affording fully seven months and a half of uninterrupted navigation for the year 1855.

The only accident of any consequence which occurred during that period, was the destruction of a swing bridge, by a steamer getting in contact with it; since which, to the close of the season, a temporary mode of crossing was maintained. A new bridge is in course of construction, and will be ready by the opening of the navigation.

The wharves at the lower outlets of the Canals have been found expensive to maintain, owing to their being leased to parties, at rents that may be considered nominal, who exclusively occupied and used them for the shipping of cord-wood, thereby damaging the structures, and causing more or less detention and risk at the entrances to the locks adjoining. The leases, in such cases, have been cancelled, and the wharves made good.

The pier works provided for by appropriation, and intended for the improvement of the entrances to some of the Canals, are nearly completed, and have already proved highly beneficial.

The surf raised by high winds, and the surge caused by the passage of steamers, have injuriously affected the face of the banks of the Canals, in several places, to such an extent as will make an outlay of, probably, £1,600 or £1,800, necessary, for the purpose of protecting them with a stone facing.

The Junction Canal, so called because it will unite the Galops with the Point Iroquois Canal, may be considered completed, so far as the Channel is concerned, the whole being excavated to the required width and depth. What now remains to be done, consists of the closing the opening, left at each end for the passage of vessels, pending the continuance of the work, and protecting the embankment at those places with a facing of stone.

The great delay in the prosecution of this work has been seriously inconvenient and injurious to the forwarders and others, and has been the source of much and well founded complaint by them. It was caused, solely, by the work getting into the hands of inexperienced men, and at non-remunerative prices. After about two years and a half of slow and unsatisfactory progress, during which, the work was in the possession of two sets of Contractors, it was found necessary to take it out of their hands, and entrust the finishing of it to more competent parties. Thus, after the Trade being deprived, for two years, of the advantages to be derived from the work, if completed in reasonable time, the Province will be at a cost, on account of it, of several thousand pounds more than would have been expended on it had it fallen into proper hands at first. The difficulty of passing over low tenders was the cause of the evil in this, as in many other instances, as stated in former Reports; and it adds another to the many previous proofs that economy is not always best consulted in awarding such Contracts to those who tender lowest.

On the connection of the two Canals being completed, a greater supply of water at the head will be required; to admit which, the construction of supply-gates, and of a race-way on the north side of the Guard Lock, will be necessary.

CORNWALL CANAL.

This Canal was opened on the thirtieth of April, and closed on the eighteenth of December, affording a business season of 232 days for the year 1855. It has been maintained throughout the season in fair working order, with moderate repair; no casualty of any kind having occurred to the gates or other works, so as to cause one hour's detention to vessels passing in either direction,—a strong proof of the value of an experienced and active Superintendent.

The vigilance and zeal of Mr. D. A. Mc. Donell, the Superintendent, has been, during the past year, as usual, most praiseworthy. To it is attributable, in a great measure, the satisfactory working of the Canal, the safe maintenance of the heavy embankments and other works peculiar to it,—and the regularity with which the different *employés* discharge their respective duties.

Twenty-five houses have been built during the past year, for the exclusive accommodation of the lock masters, and of the men employed during the season of navigation.

The extension of the pier at the lower entrances, for which an appropriation was granted, has not been commenced, owing to difficulties which arose in the letting of the work; but arrangements have been made for its completion as early as possible in the ensuing summer.

Several applications have been made for the leasing of hydraulic powers on the line of this Canal; but the very serious inconvenience to the Trade, repeatedly and annually complained of, as to the manner in which the water is taken from the Canals generally, renders the further establishment of water-power on this as well as on the other Canals, inexpedient, until an appropriation should be had for the construction of certain works connected, with a better mode of letting out the water, so that it shall not be in the power of the millers to lower it below the full navigable depth. The attention of the Chief Engineer to the Department has been directed to this subject, and his Report thereon is hereunto appended. —(See Appendix.)

BEAUHARNAIS CANAL.

This Canal was opened, last year, on the first day of May; but, owing to ice at the upper entrance, no vessel could pass until the evening of the third of that month. It was closed, suddenly, on the twenty-eighth of last November, by the failure of a Gate, which could not be replaced in time for the opening of the navigation at that late period, in consequence of the thickness and quantity of ice that had accumulated in the vicinity.

During the past season, the navigation was interrupted four times; principally in consequence of damage done to the Gates or other portions of some of the Locks. The first caused a delay of thirty hours; the second, of thirty-two hours; the third, and most serious, which took place on the twenty-third of August, by the displacing of the mitre-sill and apron of Lock No. 8, required seven days and a half to repair it; and the fourth caused a delay of five hours.

The several extensive waste-weirs and discharge-gates—added since the construction of the Canal—although not quite finished, are now fully available. The extension of the piers at the lower outlet is also nearly completed, and the capacity of the harbour is, in consequence, much enlarged, and the facility of entrance increased. Several of the swing bridges, which were partly decayed, are in course of being either renewed or thoroughly repaired.

From the purely aluminous nature of the material of which the banks are formed, the action of the water has caused much silt to take place, in several parts to such an extent as to obstruct the passage of deeply-laden vessels; to remove which obstruction a Dredge will be ready on the opening of the navigation.

At the upper entrance of this Canal, on the East side, near to the extensive Paper Mills in operation at the date of the last Report, a large Flouring Mill has since been built, and, on the West side, a Grist Mill and a Saw Mill have likewise been erected. Several other such works can be established here; as, from the nature of the position, and the construction of the Dam, the navigation of the Canal cannot be injuriously affected by them.

The works of the Dyke near the head of this Canal, the construction of which was considered necessary to prevent the water of Lake St. Francis from flowing over a large tract of low land in that locality; and to cover the cost of which an appropriation was made, are advancing satisfactorily. The result of this dyke or embankment will not only be to do away with all future claims for damages by the flooding, whether real or imaginary, but will be the means of reclaiming and rendering valuable an extensive tract of land heretofore worthless, and will form a direct line of communication to the Western Townships.

LACHINE CANAL.

The opening of this Canal, last year, took place on the first of May, and it was closed by ice on the twenty-eighth of November. During the season, the only detention to vessels was caused on the night of the third of May, by the giving way of part of the old Lock at St. Gabriel. This obstruction, which, at first, appeared likely to prove of considerable duration, was removed in a few hours by the energy of the Superintendent, supported by the assistance rendered him by Messrs. Grant & Hall, proprietors of Mills in the vicinity, and by the promptitude with which Mr. Hodges, the Agent of the Contractors of the Grand Trunk Railway, placed his teams and materials at the disposal of the Canal Officers.

Considerable repairs to the banks, the bridges, the wharves, and other works, have been effected during this year; and the road leading along the South side of the Canal from Wellington Street Bridge to the upper end of the hydraulic property at St. Gabriel Lock, has been formed and macadamised.

The following statement shows the number of new gates substituted for old ones, and of those ready on hand to meet contingencies on the several canals:

Canals.	New Gates substituted for old ones, 1854.	Do. 1855.	Extra New Gates on hand.	Old Gates worth repairing.
Williamsburgh, ...	2 Leaves.	0	8 Leaves.	4 Leaves.
Cornwall, ...	2 Leaves.	2 Leaves.	12 Leaves.	6 Leaves.
Beauharnois, ...	6 Leaves.	4 Leaves.	14 Leaves.	8 Leaves.
Lachine, ...	11 Leaves.	1 Leaf.	12 Leaves.	6 Leaves.

The facilities for insuring a greater, more uniform, and more constant supply of water at the head of this Canal, are much increased by the construction of the new head-gates and race-way on the South side of the Guard Lock, which have been completed and brought into use since the date of the last Report.

Notwithstanding this important improvement, the demand for water for the extensive machinery already established and which may yet be established on the line of this Canal, as well as the necessity of affording greater facilities to the Trade, renders the widening of the portion of it through the rock-cutting near the Lachine terminus absolutely indispensible.

The removal of the material over water-surface, for a breadth sufficient to admit of the bottom of the Canal being increased to 100 feet, was contracted for, and commenced in June, but was suspended about the first of November last.

The work was taken at a price about half that which it was estimated by the Engineer to be worth. The consequence was that the Contractor soon found himself in difficulty. He alleges the excavation not to be of the character he had been led to suppose ; that instead of its being clay, it consists principally of the stones taken from the original rock cutting, firmly imbedded in tenacious clay. After a good deal of negociation, a compromise was entered into with him, in accordance with which he was to be paid for the work necessary to be done, at the rate of the Engineer's estimate. This work was suspended during the winter, as the cost of removing excavation of that description is importantly increased by the action of severe frost.

The extension of the Basin Pier at the Lachine end of the Canal has not proceeded satisfactorily during the past season. The Contractor promises greater exertion the ensuing spring ; and he expects to be able to sink a number of cribs this winter, and to have the whole finished next summer.

There are several improvements required on this Canal, and which should be provided for. The principal of these are :

The widening and deepening of the Canal through the rock-cutting, already mentioned. The erection of Lock and Bridge Tender houses. The construction of waste or regulating weirs at Locks three and four, now absolutely necessary, in consequence of the failure of the old Locks hitherto used as such. A regulating weir at the upper end of the race-way leading to the mills on the north side of the Canal at St. Gabriel's Locks ; and the building of a good store-house for the storing of oil and various other articles annually required for the Provincial Light Houses and for the Canal service. An extensive boom, with sufficient gates, mooring cribs or piers, is also very necessery at the Upper end of the Canal, to retain the large quantities of timber collected there, the proprietors of which seldom take sufficient pains to secure it properly, the consequence of which is that it frequently gets adrift, and blocks up the navigation, causing very serious inconvenience and obstruction to the trade. A toll should be levied on the timber so beached, to cover the costs and maintenance of the booms, &c.

The daily increasing accommodation called for at the Montreal terminus of the Canal by the Trade, and the number of manufacturers established in that locality, require that, pending the construction of the extensive Docks, Wharves, &c., contemplated, and for which the ground has been acquired, the sides of the Basins already formed above Wellington Street should be faced, and the Wharves thus formed opened to the Trade, under proper regulations. Some of them have been hitherto monopolized at nominal rents, as lumber-ground. The upper and larger Basin might be appropriated to such freight as cannot be immediately removed, and the lower for ordinary purposes.

To afford further convenience for the despatch of the business about the Wharves and Docks of this Canal, the undersigned were anxious to enter into arrangements for their being well ligthed with gas, which would also much tend to the security of the property, necessarily left exposed about them. With this view a negociation was opened with the Manager of the New City Gas Company, but the terms proposed by them were not considered reasonable. These terms were, that the Government should pay for at least 60 or more lamps, at the rate of £6 per annum per lamp, to be lighted nine months in the year, and should contribute £500 towards laying down the pipes, and other work connected therewith. The Gas Company did not propose to procure the pipes in this country, but intended postponing the work until they had sufficient time to import them.

These terms were considered inadmissible, inasmuch as the same Company supplies the Corporation of Montreal at the rate of £4 10s. for each lamp lighted throughout the year; and the price demanded appeared the more unreasonable, as the three months during which the Company proposed that the lamps on the Canal should not be lighted, are those requiring considerably the greater expenditure of gas. The consumption in those three months would be quite equal to that in any other four months.

The sum (£500) asked for by the Company towards furnishing and laying down the pipes, in addition to the annual charge for the gas, is nearly equal to the whole cost of such work, and would appear to be demanded only from the Department, as the charge for gas to the Corporation and to individuals, although so much less than that asked for lighting the Canal, covers the cost of not only the necessary pipes, but of the entire of the Gas Buildings, &c., &c.

From the many and important manufactories in the vicinity of the Canal Basin and Wharves, the introduction of gas into which, would, no doubt, be agreed for, the undersigned are in hopes of making arrangements with the proprietors of them, by which the gas required for the lighting of those respective premises, and for Canal purposes, may be procured on more reasonable terms.

The Culvert constructed under this Canal, for the Montreal Water Works, remains in nearly the same state in which it was left in the fall of 1854, when, in order to maintain the navigation, it became necessary to inclose the south end of it by an embankment. The leaks through the Culvert, which rendered the adoption of this course necessary, are said to have been caused by screws made use of to re-adjust the pipes having forced the framing of the Culvert apart. As the Canal will have to be emptied about the twentieth of next March, for the purpose of effecting various repairs connected with the main Basin wall, the regulating gates at St. Gabriel's Lock, &c., &c., the Corporation will then have an opportunity of having their Culvert thoroughly secured.

It seems to the undersigned to be a matter of regret, that the important works undertaken for supplying the City with water, are not so devised that, whilst all the objects for which they were specially undertaken would be attained, they might, at the same time, subserve the interests of the Canal. There is an identity of interests involved in the improvement of the Canal, the extension of its Docks, and the increasing to a very great extent the amount of water-power for manufacturing purposes, with those of the Corporation and of the City of Montreal; and it is considered that, by a trifling alteration in the level at which the water is brought down, by which it would coincide with that in the Canal, all the various interests referred to could be materially promoted, upon arrangements beneficial and satisfactory to all.

RIVER RICHELIEU.

From the River St. Lawrence to the Basin of Chambly.

This navigation, during the season of 1855, was opened at St. Ours Lock on the twenty-third of April, and closed on the thirtieth of November. It was interrupted on the fourth and fifth of June, by the disarrangement of one of the Lock gates, and for a few hours in July, by the replacing of a friction roller.

The Piers above and below the Lock have been repaired. The protection walls in front of the abutments of the Dam have been rebuilt; and a new house has been erected for the Superintendent.

Towards the middle of September, a portion of the lower apron of the Dam was observed to have risen from 6 to 20 inches, and arrangements were at once made for securing it; but before this could be fully completed, the river rose to a height that caused a suspension of the operations, as it also prevented the sinking of about 200 feet of crib-work, intended to fully secure the centre of the Dam. Those cribs, with two others designed to guard against the danger hitherto annually caused by ice at the ends of the east abutment, will be sunk and completed so soon as the low water, next June, will admit of it; at which time, also, a thorough examination of the state of the Dam, the bed of the River, &c., &c., will be made.

CHAMBLY CANAL.

This Canal was opened on the second of May, and continued navigable until the twenty-ninth of November, 1855, when it was closed by the failure of the lower entrance gates.

In the last Report of this Department, the ruinous condition of almost all the works of this Canal was adverted to; and it was then stated that to put the Canal into an effective state, even on its present insufficient scale, would require a very large expenditure; the incurring of which would appear to be inexpedient until the important question as to the line and construction of a Canal to unite the St. Lawrence with Lake Champlain is first decided on by the Legislature. It was proposed, therefore, to expend as little as possible upon the temporary repairs of such works as interfered with the navigation in its then state.

This principle has been acted on, and but little expenditure has been incurred; but owing to the attention of the Superintendent, Mr. Chartier, judiciously and timously given to the repairs of the banks, gates, and other works, they have been maintained, without interruption to the navigation, in as passable a state as their ruinous condition would admit.

The whole of the works, with the exception of the Guard Lock and the three combined Locks, are so defective and unsafe as to render much outlay upon them, short of that of reconstruction, unadvisable; and such reconstruction cannot be recommended, until the question of the St. Lawrence and Champlain Canal is decided, as already stated. But in order that the navigation may again be opened with any prospect of its being maintained, a portion of the walls below the upper recesses of Locks 3 and 6 must be taken down and re-built, and several other repairs made;—the cost of which will probably amount to between £800 and £1,000.

ST. ANNE'S LOCK AND DAM.

The navigation through this Lock was opened on the thirtieth of April, and closed on the twenty-seventh of November, 1855. No obstruction was caused during the season by any accident, or by failure of any part of the works, except that, on the seventeenth of September, the repairing the chain of one of the lower gates prevented the working of the Lock for about five hours.

The works, generally, are in good condition, but some of the gates begin to shew symptoms of decay, and will probably have shortly to be replaced by a new set provided for the purpose.

The works of the pier above the Lock, and the raising the landward pier at the lower entrance,—the necessity for which was stated in the last Report,—were placed under Contract in September last, and are now so far advanced as to leave no doubt of their being completed by the opening of the navigation.

Operations for the deepening of the Channel at the upper entrance were commenced during low water last year, and carried on, with moderate success, for two months. They are still in progress, but confined to boring and blasting, which the ice affords facilities for carrying on advantageously. The rock thus broken up will be removed early in spring.

The difficulty at the lower entrance, stated in the last Report to have been caused by the cross current created by the direction of the pier of the Grand Trunk Railway Bridge, will be a good deal removed by the extension of the lower landward pier, now being effected by that Railway Company; but the full remedying of the evil can only be accomplished, it is believed, by constructing a line of cribs above the Bridge Pier on the south side of the raft channel, so as to give the water an outward direction before reaching the lower entrance to the Lock.

RIVER LIGHTS AND BEACONS.

The old Light House, under the charge of this Department have been maintained, with ordinary repairs, in a serviceable state during the past season.

The Buoys where worn out, destroyed by ice, or carried away, have been replaced.

Some extensive repairs will be necessary, in the course of this year, to the upper portion of the pier upon which stands the Red Light at Grosse Pointe, Lake St. Francis. The erection of a new Light House opposite Lancaster, on the foundation prepared for that purpose, is much required.

The state of the Light House and Tower on Pelée Island, in Lake Erie, will demand early attention in spring. During the heavy equinoctial gales; the waters cut so deeply into the margin of the Lake, as to undermine the Keeper's House, and to within a short distance of the Light House Tower. The house must be moved back, and the bank protected with stone.

The new lights between Kingston and Prescott, referred to in the last Report, have been completed; and it is expected that the light at Coleman's Creek will be ready by the opening of the navigation. The important light on the "Scotch Bonnet," in Lake Ontario will be brought into use as early as the lighting apparatus can be taken to the place and fitted up, next spring.

The necessity for the establishment of a light on Snake Island, off the entrance to Kingston Bay, is daily becoming more apparent. Several disasters have occurred from want of it, and it is proposed, therefore, to recommend in the estimates a sum for the erection of such Lighthouse.

The Floating-light vessels on Lake St. Louis and Lake St. Francis are very expensive to maintain and are becoming very unsound. It is proposed merely to incur the cost of such repairs upon them as will keep them available until they are replaced by others of a more permanent description. In Lake St. Louis, where they are subject to very heavy pressure of fields of ice, it may be found desirable, in some cases, to substitute fixed houses on massive stone piers; and should it be found necessary to retain any floating lights, the adoption of iron vessels will be productive of ultimate economy.

On Lake St. Francis the pressure of the ice is not by any means equal to that on Lake St. Louis, and suitable fixed structures of wood may be substituted for the floating lights at a cost of about £750.

In Lake Erie, the foundation for a Lighthouse at that very dangerous point known as "Pointe Pelée Reefe," has been sunk during the past year, but much remains to be done before it can be considered secure and the light exhibited.

From the commencement this work has been attended with a vast deal of delay, difficulty and expense, owing to its very much exposed position, and to its being subjected to strong currents ever changing in velocity and direction, governed by the violence and course of the sudden squalls which are of such frequent occurrence on this Lake. From this cause, the site of the work is often unapproachable for weeks together, and from the great impetus with which large fields of ice are sometimes driven backwards and forwards, it will be necessary that the work should be of the most substantial and massive character.

To obtain this, it is proposed to terminate the heavy cribs which are sunk at a foot or two below the lowest water, to discharge a quantity of heavy stones all around them, allowing the stones to take their own slope and to carry upon the cribs to the height of twelve or fifteen feet a circular solid mass of heavy masonry with suitable slope. To this, and the erection of a temporary beacon, it is intended to confine the operations for this year, and until the experience of the effects of one or more winters will afford good grounds for confidence in the stability of the work; after which, a proper superstructure for a light can be substituted for the temporary beacon.

The light and shifting nature of the sand, lying on an open-jointed horizontally stratified limestone, of both of which this long spit or reef under water is formed, renders this principle of construction more applicable within a moderate expenditure, to the position than other mode successfully adopted elsewhere.

The works of several of the Light-houses on Lake Huron, for which appropriations were made, progress satisfactorily, although the season was pretty far advanced before the Contractor had time to provide the varied and expensive plant, consisting of steam and sailing craft, machinery, &c., &c., indispensable for carrying on with any degree of confidence, works of this description, in a position so unsheltered and difficult to approach.

The keeper's house, on Nottawasaga Island, at the entrance to Collingwood Harbour is finished, and the Light Tower is carried up four stories; the cut stone and materials for the completion of it are got out, and it will be ready for the lantern and lighting apparatus early in June.

On Christian Island, the keeper's house is erected; the Light Tower is up to the third story; the cut stone and all other materials necessary for finishing it will be prepared this winter, and the tower will be ready for the lanterns by about the first of July.

Isle of Coves.—For this important Light, which will be situated in the straits between Lake Huron and Georgian Bay. The keeper's house is erected, and the basement and part of the next story carried up. Fully half of the cut stone is now ready and the rest of the required materials in general is being prepared, so as to enable the whole to be finished ready for the lantern by the first of August. The approach to and delivery of supplies at this work is attended with considerable difficulty and expense.

For the Light-houses and Towers at Chantrey Island, Point Clark and Griffith's Island, quarries are now being examined, and when a decision is come to, forces will be at once put on to get out the materials, so that these works may be completed by the close of the season, and should no unforeseen difficulty arise, it is expected that the building of all the Light-houses provided for will be executed this year. No time, therefore, is to be lost in procuring and having delivered the respective lanterns and light apparatus for each of them; and arrangements have been made with the patentee accordingly.

Besides the Lights above referred to, one is very much required on the Duck Islands, which lie nearly mid-way in Lake Huron, and are directly in the track of vessels coming down the Lake, and bound for Georgian Bay, Saugeen, Collingwood Harbour, &c., &c.

Of the appropriation for piers on this Lake, the following distribution has been made; £7000 towards the construction of a break-water connected with Chantrey Island, off the mouth of the Saugeen River, and opposite the village of that name, which promises rapidly to become a place of considerable importance. This expenditure will give a certain amount of safe lying for vessels, while waiting to load or discharge, and together with the Light-house now being erected on the Island, will be of much advantage, not only to that locality, but to vessels bound up or down this coast, which naturally offer but very little shelter or protection whatever. When this break-water is extended as it ultimately must be, it will form an excellent asylum harbour for vessels to make for in bad weather; and, together with landing-piers from the shore, will afford good accommodation for the trade of the place.

At Penetangore—a place also destined soon to be of some importance, from its situation at the head of an established road leading into the heart of of a large tract of excellent farming country, for the exports of which it will be the outlet,—the sum of £3,500 is about to be expended upon an insulated pier, which must necessarily be of a very substantial character, owing to its exposed position. It is so designed as to form the basis for the future extension of the works that will be required there. The same amount is also appropriated for similar expenditure at Inverhuron, a place to which the foregoing description, as to its back country, applies, but which is much more favored in having a moderately sheltered position for its pier. The piers at both these places will be completed by or before the close of the summer.

The sum of £1,000 has been appropriated to be expended at Meaford, in conjunction with the Municipality, who contribute a like sum.

It is, unfortunately, the fact, that for a great extent of this Lake, fronting on an excellent back country, the nature of the coast presents but little aid towards the construction of good harbours. These, as the progress of the country calls for them, can only be obtained by considerable expenditure; which, however, the rapid settlement and cultivation of that section of the Province will soon require and justify.

RIVER TRENT WORKS.

The improvements classed under this head in the last Report, would more properly be designated as improvements to the navigation of the inland waters of the Newcastle District.

Above the Town of Peterborough, the Trent, for some miles, maintains the character of a fine river of about 200 feet in breadth between its banks, discharging a copious supply of water at all seasons, and affording admirable sites for the establishment of manufactories requiring extensive water-power. The river then spreads out into a great number of lakes, traversing the country in various directions, and the recipients of several considerable streams. Some of these streams are partially navigable, and, with moderate expense, might be made more so. The lakes are connected by reaches of river, varying in length, and generally presenting excellent mill sites. The navigation of these lakes, and of the rivers and streams discharging into them, is of very great importance, whether because they may be regarded as the means by which the immense quantities of timber that abound in that section of the country are got to market, or, as facilitating the exports and supplies of an extensive tract of agricultural country, and affording a cheap and direct route by which intending settlers and their effects can be carried to the several recently surveyed Townships.

The advantages to be derived from the improvement of this chain of waters connecting the navigation of the lakes were early appreciated, and expenditure was incurred, many years since, in works for that object; but, from the temporary character of these works, they have been for years in a ruinous state.

An appropriation made by the Legislature in 1854 was chiefly for the purpose of renewing or repairing some of these old works, situated at Buckhorn and at Bobcaygean; and partially to improve the River Scugog by dredging a channel across two very bad short turns, which presented much obstruction to the passing of the steamboats.

The work provided for at Buckhorn was the securing and staunching of the old dam, repairing the bridge generally and rebuilding the part at that time necessary, and constructing a new slide for timber.

This dam was constructed for the purpose of raising the water and maintaining it to a steady navigable height at all seasons, and opening a navigation of twenty-four miles up to the lock and dam at Bobcaygean.

The dam at Buckhorn had been very indifferently built, and from its being based upon loose granite boulders and open-seamed rock, in the staunching of which sufficient pains had not been taken, it was found incapable, in the season of low water, of keeping up a proper navigable depth.

It has now, after considerable trouble and expense, been so effectually staunched, that it will be necessary, in order to prevent injury by back-water to the mills at Bobcaygean, to construct, in addition to those formerly in use, a series of flood-gates for the due regulation of the waters of Pigeon Lake, and as a means of keeping down the water during the building of Bobcaygean Lock. The construction of the slide is well advanced; but, in connection with it, some further works to facilitate the passing of timber are indispensable. A proper channel must be cleared below the slide; a suitable boom will be required above it, and nearly sixty additional feet of bridge, connected with the slide, has to be rebuilt.

At Bobcaygean, the work provided for was the removal of the old and decayed wooden lock, and substituting one of stone; repairing and staunching the sides of the reach of canal leading to it; erection of a new swing-bridge, and repairing and staunching the dams.

The old lock has been wholly removed, and the lock pit excavated to receive the new foundation; but, owing to the enlarged class of steamers lately placed on these waters, it was considered indispensable to set the bottom and sills of this new lock at a greater depth than first contemplated. This has added much to the difficulty of unwatering the work, and has rendered it necessary to procure a more powerful engine to drive an additional set of pumps.

The expense attending the bottoming for this lock has been further increased by the nature of the work at the lower end turning out unfit for building on. The position of the lock had, in consequence, to be moved further up; and not only was the excavation in the lock thus much extended, but the construction of an arched stone culvert for the supply of the mills became indispensable.

All the materials for this Lock and the works connected with it are delivered on the ground, and the cut stone all quarried and dressed, with the exception of part of the coping. A lime-kiln is built, and all the preparations are made to insure the completion of the work within two months after the weather will admit of the masonry being commenced.

In consequence of the very open nature of the strata of rock through which the canal leading to this Lock was originally carried, the sides and bottom were, at the time, lined with timber and plank. In considering the repair of these works, the renewal of a limited portion of this timber lining was calculated for; but, upon the water being dammed out, and the Canal emptied, the re-timbering of a much larger extent of it than what had been estimated for was found necessary.

The obtaining, by means of dredging, of a direct channel across two very bad bends in the Scugog River, was satisfactorily accomplished early in September; and so much was the navigation of that part of the River thereby facilitated, that it was considered expedient to continue the Dredge at work, for the remainder of the season, upon other portions where difficulty in passing was still experienced.

The value of the several reaches of continuous water-communication, (in all not less than 130 miles,) which may be considered as created by these works, is daily becoming more manifest, and is further increased by the construction of the Railway with which they connect. In the respective traffic of those several routes, each will become naturally an important feeder to the other. But in order that all the benefits derivable from them might be reaped, further outlay is required; chiefly on the substituting in lieu of the old wooden Lock at Lindsay, a good stone one, with a bridge over it, and an increased depth on the sill; such a Lock as is now being built at Bobcaygean; the improving of the River between Lindsay and the head of Scugog Lake; the widening and deepening the River for about half a mile below Lindsay, in part of which, at certain seasons, there is barely a depth of two feet of water; and on the building of a few Landing-Piers or wharves in suitable positions.

The extent of country benefitted by these improvements, if carried out, will be found to be very great, when the great number of Townships traversed by them, or capable of being connected with them, is considered, the ready access which they would afford to the Ports of Whitby, Oshawa, Port Hope, &c., &c., on Lake Ontario, and the facilities consequently arising to the Lumber trade, and to the opening and settlement of that whole section.

THE OTTAWA WORKS.

Chats Canal.

The works connected with the construction of this Canal have progressed steadily since the date of the last Report. The Contractors have, until lately, experienced great difficulty in procuring a sufficient number of laborers and mechanics, and have been obliged to incur heavy expense in the erection of houses, &c., to induce them to remain there, as, from the great demand for labour, and the remote and unpopulated position of this work, it was difficult to retain them there for any length of time. A large portion of the rock, of which there is much to be excavated, has turned out to be of an extraordinarily difficult nature to work, owing to the great proportion of iron pyrites, with which it is charged. These, as well as other natural difficulties of the locality, have, no doubt, caused the rate of progress to be less than it otherwise might have been.

The force, however, has been recently much augmented, which gives reason to believe that a number of the lock-pits will be ready for the foundations early next summer. Good quarries have been opened; part of the lock stone has been prepared, and arrangements have been made to urge on this portion of the works with energy.

The general outfit required for their prosecution has been, throughout, attended with very heavy contingent expenses. The cost of transporting heavy and bulky articles such as are necessary in operations of this class, together with the ruggedness and difficulty of the ground, causes considerable outlay in getting them to the spot, even after they have been delivered in the vicinity of the works. These difficulties, taken in connection with other causes, the greatly increased rates of labour, provisions, and other indispensable articles, the unremunerative prices at which the work was taken in the first instance, have, doubtless, resulted in expenses ruinous to the Contractor, and which, in a different position, and under other circumstances, could have been avoided.

RIVER OTTAWA WORKS.

Slides, and Channels thereupon, Dams, &c.

Since the date of the last Report, many essential improvements have been made both in the "Slides," and approaches thereto situated on the Ottawa and its tributaries. Among these may be mentioned the construction of Dams at the Chaudière Falls, City of Ottawa, which not only insure safety in passing that portion of the River, where much valuable property and life have heretofore been lost by being carried over the Falls, but also render available a channel on the north side, through which rafts can pass at lower stages of the River than formerly. By these dams, also, are obtained the means of furnishing an almost unlimited supply of water-power, and at the same time of maintaining a more uniform head, both at the mills already built and at any that may subsequently be erected.

The slides and other works generally have been repaired and kept in good working order. In some cases the slides have been lengthened, and the channel deepened above and below them when necessary.

Several petitions having, from time to time, been presented from a number of parties lumbering on the River Petewawa, in favor of having a substantial retaining boom constructed at the mouth of that River, and also to have several bad chutes improved by means of slides and dams, as timber passing these chutes has hitherto been much injured, a survey was instituted, and effected through a gentleman recommended by the petitioners as being well acquainted with the River. From the large amount at which he estimated the works required in his opinion, the undersigned thought it necessary to have a re-examination of the localities made by the Officer of this Department in charge of the Ottawa works, whose report differ in some respects from that first mentioned, inasmuch as he represents that narrow slides would be the most suitable for the River in question, and that the lumbering done on it would not justify the cost of the construction of crib slides, which, from the nature of the Falls, would be very expensive. The cost of the work that would, in his judgment, meet all the wants of the trade, he estimates at £5,033, to which, however, should be added at leasi 15 per cent. for superintendence and the contingencies to which the construction of snch works is liable,—making in all £5,787.

The undersigned are of opinion that the revenue to be derived from moderate slidage dues on these works, would amply compensate for the outlay upon them.

On the Madawaska River the whole of the works have also been kept in good condition, and several important improvements have been made which greatly facilitate the running of timber where much obstruction was previously encountered..

Arrangements have also been made for affording greater facilities to the lumbering operations on the Gatineau River, by improving the different works there, and by securing the uninterrupted right,—hitherto in dispute,—of using what is termed the "Gatineau Pond," which admits of large quantities of timber being collected in it, and rafted in a manner suitable for its transportation to market.

Mr. Merrill, the Superintendent of these works, has furnished the following information with regard to them.

That on the Ottawa, proper, all the slides, piers, dams, booms and other works from Joachim Rapids downwards, are in a good state of repair, requiring no present outlay beyond that necessary for replacing some stop-logs, guide-booms, floor timbers and cribs.

That the Gatineau works are all in good condition, and require no further expenditure.

That the whole of the works at the Madawaska River, constructed for the purpose of rendering it suited to the safe descent of rafts, are in a thorough state of repair.

That the High Falls Slide, which is about 1300 feet long and, at some places, 30 feet high, and supported upon trestle work, begins to shew symptoms of decay. It would, therefore, be prudent to substitute open crib work for the present frame work underneath, during the present season.

UNION SUSPENSION BRIDGE.

The works of the Bridge generally, are in a good state of preservation; but the roadway planking and some of the cross floor timbers should be removed this winter, when the ice is good for crossing below the Falls.

It is intended, on the opening of spring, to have the wire cables and other portions of this work thoroughly and searchingly examined, to ascertain whether they require any painting or other protection from the influence of the atmosphere.

At Mountain Slide the construction of booms is in full progress, and they will be prepared in due time.

New Works proposed for the River Ottawa.

Building and sinking three cribs for rafts to snub at before running the Chats Rapids, anchors being found insufficient.

The construction of a slide at the Little Chaudière, near the north shore, to render the work already constructed there complete, there being a declivity of 8 feet within a short distance. This work could be performed to the greatest advantage in August or September next.

At the Madawaska River, the following works are recommended for the accommodation of parties engaged in lumbering at its upper districts, or such as are necessarily late in getting down their timber.

The extension of the dam at the Table Rock.

Building a dam at "Jam Rock," contracting the channel at Rugged Chute by extending the dam on both sides. Constructing a dam and apron at Chain Rapids, a dam at Bailey's Chute, and deepening the channel at Nettleton retaining booms at Large Bay, below Rugged Chute.

River St. Maurice Works.

Great improvements have been made in the slide navigation of this River during the past year, by which the works generally are rendered more efficient.

At La Tuque, the booms have been replaced; and the other works are nearly completed.

At Grande Mere, a flat dam has been constructed at the head of the Fall on the west side; the main dam raised, and eight additional cribs sunk for mooring the booms.

At Shawenegan, sixteen boom piers have been built at the Lower Bay;—four additional cribs at the Upper Bay, for mooring the booms, and six piers for supporting the Boom reaching from the upper Island to the East shore below Hêtres Rapids, have been constructed.

At Grais Falls, eight piers for mooring the booms have been built, to supersede the anchors hitherto used; and

At the mouth of the River St. Maurice, twelve additional piers have been built for supporting the booms, additional mooring posts placed on the shore, &c.

Mr. Dawson, the Superintendent of these works, has furnished the following information:

That notwithstanding the depressed state of the lumber trade, the St. Maurice territory is gradually progressing: new winter roads have been made, and others are in progress. The Lower St. Maurice, so far as accessible by roads, is rapidly being settled. A winter-road has been made from Berthier to the lumbering establishments on the Matawin, a large tributary of the St. Maurice, which opens out an extensive market for produce.

But notwithstanding the progress of this territory hitherto, it is evident, when its great extent is considered, that its lumbering operations and settlement may be looked on as only commenced. The tributaries of the St. Maurice extend, westward, behind the Island of Montreal, and eastward, beyond Quebec. Immense timber districts are scattered over the region; the settlement of which amounts to a certainty, from the probability of the timber being much sought after.

The works in progress still remaining to be completed are as follows:

Falls of La Tuque.

A portion of the large dam requires to be filled with stone; and in the rear of it an additional pier must be built.

Manigonée Rapids.

Certain works, by which the channel for the running of the timber is obstructed, should be blasted and removed.

SHAWENEGAN FALLS.

Some of the piers should be made higher, and an additional crib should be sunk, to support and facilitate the extension of the boom leading to the slide. Fenders are required to the crib facing the great eddy. Stones are collected and materials prepared for the above works. In addition, however, to these, for the completion of which the sum of £800 will be required, over and above the balance of the appropriation on hand, the Superintendent recommends the following to be done during the ensuing season :

5 Piers in Lower Shawenagan Bay, which, with additional chain fastenings would cost	£840
1 Crib in the east channel at the mouth of the St. Maurice, with additional Boom-posts, cost	165
Superintendence and sundry contingencies	350
Required over present appropriation, as above	800
Total to complete works in hand, and to construct those recommended for the present year	£2155

Besides these comparatively small works, which Mr. Dawson, the Superintendent, considers necessary to be done during the present year, he reports on others of consequence, from which he represents that important advantages would be derived. The first of these is the construction of a crib slide of the Grais, by which an unlimited amount of water-power for saw mills would be rendered available at Shawenegan, and the whole of the River below the "Forges Rapids" would afford desirable sites for steam-mills. The cost of the crib-slide would be about £8500.

By this slide, facilities to an almost unlimited extent would be created for lumbering operations, and the Tolls that may reasonably be expected from it would justify the expenditure. The undersigned, therefore, strongly recommends that it should be constructed, so soon as the state of the finances will permit. The probability of this slide being built, would have the effect of leasing more of the timber limits in that section of the country, and of increasing their value.

Next in importance to the above is a slide for loose lumber at the Iroquois Falls, on the Vermillion River, and the improvement of a few rapids between it and the junction with the St. Maurice ; to accomplish these objects would reuire an outlay of above £5000. These works would open to lumbering operations an immense tract of timber land now shut out by the difficulty of the Falls.

PORT STANLEY HARBOUR.

The deepening of the inner Basin at this Harbour has proceeded slowly during the past year, but arrangements are about being made to urge it on more expeditiously for the future. The effects of this deepening, so far, besides enlarging the capacity of the Harbour, have proved beneficial in keeping the entrance of it clear, and in diminishing the quantity of deposit in the channel.

The works connected with the extension of the West pier, and protection docking of the Basin, for which an appropriation was granted, have been aced under contract, and are now in progress; and there is every reason to calculate on the works here being completed early in the ensuing season.

BURLINGTON BAY CANAL.

A considerable amount of work has been done on this Canal during the past year. It consisted, partly, of works of necessary repairs and maintenance, and partly of the extension of the North West Pier in the inner Lake, and of the South West Pier in the Main Lake.

The former is nearly completed, and the latter has been carried out about

300 feet, with a slight inclination to the northward. The direction so given to this pier, has had the effect of lessening the swell in the Canal, and thereby affording better shelter for vessels. The works in the outer or main Lake have been attended with much difficulty and delay, owing to the depth of water and its exposed position. A greater amount of work was required for the purpose of extending and securing the pier in the inner Lake than had been contemplated, as it was found necessary to take up about 60 feet more of the old pier, and to clear the bottom by renewing the work which had been forced into it by the ice. A quantity of dredging will also be required in spring, to open the Channel effectively for the Steamboats of greatly enlarged dimensions which have lately been built to run from the Port of Hamilton.

A very large proportion of the North Pier is now in a very dilapidated and unsafe state, owing, chiefly to the decay of the material and the nature of the bottom of the channel. It may possibly stand another season; still, it would not be prudent to calculate too much on its doing so. The sum which its thorough repair will cost will be about £5000; and it is highly desirable that, say one half of that sum, should be appropriated towards it during the present Session, for the purpose of getting out materials, and to cover the cost of stripping off such part of the superstructure as may shew symptoms of falling into the channel, as the cost of then removing it would be considerably increased.

PIERS BELOW QUEBEC.

These works, so far as embraced in the present Contract, may, with one exception, be considered as completed.

The following information respecting them has been furnished by Mr. P. Gauvreau, the officer in charge:

The piers at L'Islet and Rivière du Loup are now completely finished, except the putting on of a few iron straps at the angles; a work which could not be done last Fall, on account of the high state of the River and Tides.

At Rimouski the pier is also completed, with the same exception and for the same reasons above stated. It is so exposed to the sea and the ice, that not only is the stability of the structure itself endangered, but, in its present state, it affords little or no shelter to vessels in any wind. It is, therefore, considered necessary that a wing, 100 feet by 40 feet, should be constructed at its outer end, on the South-west side; which, together with the lee under Barnaby Island, would enable vessels in rough weather to ride with safety. This wing is also considered indispensable for the protection and strengthening of the pier itself.

At Pointe aux Orignaux, the pier is in a more exposed position than any of the others, which circumstance, together with the unfavourable weather during the past season, prevented the progress from being such as it would otherwise have been.

A portion of the work is still unfinished; but all the materials are on the spot, so that the whole may be completed early next season.

The upper face of the pier at Eboulement, and of that at Malbaie, have suffered somewhat from the operation of the ice during the past season. As soon as the River is in a fit state, the extent of such damage can be ascertained, the repairs effected, and the work so secured as to prevent a recurrence of the injury.

The experience of the past year shews that the piers, generally, have not only proved a convenience and shelter to vessels frequenting the respective places where they are situated, but to others that availed themselves of the shelter they afforded.

The advantages resulting from them have also been felt and appreciated by merchants, farmers, and others, residing throughout the different localities which have been opened, and are still being opened, by the facilities afforded to the inhabitants of reaching markets from which they were previously debarred.

The following improvements are necessary to obtain from these piers the full benefits they are likely to confer—namely:

First. The erection of two cranes on each wharf, for the purpose of loading and unloading heavy and bulky articles, especially when the tide is out, the piers being then nearly twenty-six feet over the water, and vessels being obliged to take the side of the pier most sheltered from the wind for the time being. A crane upon each side is therefore much required.

Secondly. The erection of a light on the extreme end of each pier is considered of importance; as well for the prevention of accidents by night, as to enable vessels to steer for the sheltered side.

Thirdly. It is considered expedient that each pier should be placed in charge of some person residing on the spot, whose duty it should be to keep up the light, prevent the works from being damaged, and see to their maintenance generally.

To defray the expenses attending salaries of such keepers, repairs to the piers, &c., it is proposed to levy harbour dues on all vessels calling at them, and wharfage on all property and produce shipped or landed. This course is generally approved of by residents in the respective vicinities.

The necessity of some such arrangements being made, is evident from the manner in which the piers are abused by parties kindling fires on them, &c., &c., for want of proper local authority to check such trespass.

LIGHT-HOUSES BELOW QUEBEC.

The works connected with the construction of the Light-houses below Quebec, referred to in the last Report, are so far advanced as to leave no doubt of their being ready for the reception of the lanterns and lighting apparatus, as soon as the latter can be delivered. At the west point of Anticosti, at Cap Rosier, and at Pointe Amour, the respective towers have been carried up twenty feet over the basement, and the Light-keepers' houses are all but completed.

At the Island of Belle-Isle, the work is in a less forward state: but the greater portion of the necessary materials have been delivered there, as well as at all the other places.

In the prosecution of these works, throughout, extraordinary difficulties have been encountered. The arrangements made by the Contractor have, so far, proved eminently successful, not only in facilitating the operations, but also in preventing, in a great measure, those casualties to which undertakings of this nature are, above all others, liable.

The great bulk of the materials having, unavoidably, to be transported from a distance and landed on a bare, unsheltered beach, against which a heavy rolling sea is constantly beating, much risk to life as well as to property have consequently been incurred. Although losses in the latter have occasionally occurred, they have not, in any instance, been of such extent as to cause any serious interruption of the operations.

At the west point of Anticosti, vessels have had to come to anchor at about four miles from the Island, and were frequently obliged to "lie off and on" for four or five days, and in one case for nine days, before they could be approached by boats from the Island. Stone, suitable only for inside work, fuel and fresh water, are all that this portion of the Island supplies towards the erections.

At Cap Rosier, vessels anchored at about two miles from the site of the buildings, and much difficulty was experienced in landing there at any time, on account of the constant swell of the Gulf. Nothing for the use of the works could be obtained in this locality, excepting sand, fresh water and fuel. Stone was brought from the Basin of Gaspé, about twenty-three miles distant.

POINTE AMOUR.

At this place, stone and fresh water were found. Sand was procured at L'Anse au Loup, between three and four miles distant; at which place all the other materials were landed, and transported by teams along a road scarcely passable.

ISLAND OF BELLEISLE.

To land materials on this Island was found equally difficult and dangerous as at the other places; but the delivery of them at the site of the building was attended with still greater trouble. The Contractor, being under the necessity of forming a road nearly one mile and a half in length, cut partly through granite, along the rugged side of the mountain, a work which necessarily occupied all the workmen for a considerable time, thus preventing the building operations from proceeding at the rate they would otherwise have done. On account of the position being high, the Light-house is a low structure, from which circumstance, the main obstacles being now overcome, there is good reason to believe that it can be wholly completed as early as any of the others.

With a view of urging on the different works, arrangements were made during the past summer, for "wintering" twenty-two men at each place; which, it is believed, will admit of the operations being continued from four to six weeks later in the fall, and again commenced as much earlier in the ensuing spring.

This arrangement, however, together with the detention experienced in landing, the delays caused by wet, unfavorable weather, (to which the Straits and Gulf are subject,) provisioning the men, furnishing and landing fuel, and many other contingencies, augment the expenses for labor alone to a degree far exceeding that of any like quantity of work heretofore done under the Government. Nevertheless, the whole has been arranged and conducted in a satisfactory manner.

In connection with this subject, it is considered proper to draw attention to certain other dangerous points and places in the Straits, Gulf, and River, the erection of Light-houses at which would contribute greatly to the safety of the navigation. The Boards of Trade of Montreal and Quebec, Mariners, and other interested parties, have frequently drawn attention to these points, which are:

1st.—Bird Rocks, in the Gulf.
2nd.—Cape Ray, Coast of Newfoundland.
3rd.—Point Rich, do.
4th.—Cape Norman, near the east end of the Straits, Coast of Newfoundland.
5th.—Greenly, or Wood Island, west end of the Straits of Belleisle.
6th.—Cap Chatte.
7th.—Manicouagan Shoals.
8th.—Little Metis Point.
9th.—The Brandy Pots.
10th.—The Grande Isle of Kamouraska.
11th.—The south end of Isle aux Grues.
12th.—Pointe St. Laurent, opposite Beaumont.

The most important of the abovenamed points are:

The Bird Rocks, Cape Ray, and Cap Chatte.

TUG BOATS BELOW QUEBEC.

Under the authority of an Order in Council of the twenty-sixth of February, 1854, a contract was entered into with Mr. F. Baby, for the establishment of a line of Steam Tug Boats below Quebec.

By this Contract, Mr. Baby was bound to establish and maintain, during the space of seven years, a line of Tug Boats, to run between Quebec and Bic, with the view of towing and aiding vessels, and for the purpose of relieving vessels when directed so to do; as well as for such other purposes as the Commissioners of Public Works might see fit.

For this service, two strong and powerful boats, of not less than 250 horse-power each, were to be built by the Contractor; but, pending the procuration or building of such vessels, "the line was to be established by the use of the "steamers *Admiral* and *Advance*, with the assistance of the *Doris*, when "necessary,"—these vessels being then at Mr. Baby's command. The maximum rates of towing were also determined by the Contract. The bonus to be paid for the performance of the duties was to be £7,965 per annum. Such were the conditions of the Contract.

The services as stipulated for under the above provisions were performed during the year 1854.

At the close of the season's operations, numerous representations were made to the Government by the Board of Trade of Quebec, and by other parties interested in the establishment of an efficient Tug Line, that no ordinary wooden vessel, with paddle-wheels, as provided for by the Contract, would be found suitable for such service, for which the large quantity of ice encountered in the early and late periods of the season appears to indicate that strong iron-built screw steamers are the proper class of vessel to be adopted.

In consequence of such representations, the Contractor was written to, requesting him to delay the building of the vessels specified in his Contract, until a decision should be come to; and he was requested to state the terms upon which he would place on the route three iron screw vessels, of much greater power, instead of the two wooden vessels with side-paddle-wheels, he had engaged for, and would extend the Towage line to Anticosti, instead of terminating it at Bic.

After some negotiation with the Contractor, the matter was fully reported on to Council, and, under the authority of an Order, dated the 26th of February, 1855, the former Contract was cancelled, and another entered into, a copy of which is hereunto annexed.—(See Appendix.)

By the provisions of this Contract, the Contractor binds himself to have, without loss of time, two first-class iron screw steamers, of not loss than 300 horse-power each, constructed and placed on the line, which is to be extended to Anticosti. The duration of the Contract is to be for ten instead of seven years; and the amount of annual bonus is to be £11,300, in consideration of the extra expense and risk incurred in extending the line so much further than was at first contracted for, as well as of the increased cost of the class of vessels which must be provided specially for the service. The maximum rate of towage charges is stated in the Contract; and the Contractor is bound to provide and put on the line one or more additional vessels, should he be called upon to do so.

Ocean Steamers.

Under the authority of an Order in Council, a contract was entered into by this Department, on the twenty-eighth of last September, with Mr. Hugh Allan, of Montreal, for the establishment and maintenance of a steam communication between the River St. Lawrence and Liverpool during the summer, and between Portland and Liverpool during the winter months; a copy of which contract is hereunto annexed. (See Appendix.)

The subject of this Contract had been more than once discussed in Parliament during the last Session, and its conditions have been made as much in consonance with the views then generally expressed as possible.

By the conditions referred to, Mr. Allan binds himself to keep up a regular

Line of Steamers to ply between the Ports of Liverpool and Quebec or Montreal once in every 14 days during the season of the navigation of the River St. Lawrence, and between the Ports of Liverpool and Portland once a month during the winter. The steamers to be of not less than 1750 tons burthen and 350 horse power; and a sufficient number of such vessels to be at all times at the command of the Contractor, to insure the performance of the trips, not less than 14 of which are to be made in each year to the St. Lawrence, and 5 to Portland; except in the event of a very late spring or some other unavoidable detaining cause; in which case but 13 trips will be required to the St. Lawrence. Under no circumstances, however, are there to be fewer than 19 trips in all, annually. By a "trip" is understood the passage out and back. The regular service of the Line is to commence in April next; the term of the Contract is to be for five years; and the annual subsidy to be paid is £24,000 sterling. The Government is to have the power of at any time annulling the Contract, should the terms and conditions of it not be fully carried out; and the Contractor, also, has the power of relinquishing it on the thirty-first of any December during its term, upon his giving six months notice of his intention to do so.

The disappointment consequent upon the signal failure of Messrs. McKean, McLarty & Co., in carrying out the Contract entered into by them with this Department for the establishment and maintenance of this important line of communication, will render the strict enforcement of all the stipulations and conditions of the present Contract doubly imperative. But, from the spirit so far evinced by the Contractor, the undersigned have no reason to apprehend that any difficulty will arise in that respect.

The attention of Government has lately been drawn to the extension of a line of Telegraph from Quebec to Forteau Bay. This subject would seem to be appropriately introduced here, as in connection with the erection of the several Light-houses, the establishment of the Tug Line between the Straits of Belleisle and Quebec, and of the Steam Line between Liverpool and the St. Lawrence, (all adverted to in the preceding,) the means of communicating by Telegraph from the Straits of Belleisle would be of the utmost importance, and would ensure all the advantages being derived from the several improvements that were contemplated when they were embarked in.

In the case of a vessel in distress, or requiring to be towed, the master in charge of the Tug Boat could, in a very short time, be notified thereof, and could proceed at once to its relief and assistance; and there can be no doubt but that thereby, much annual loss of life and property would be prevented.

In the memorial upon this subject from the Board of Trade of Montreal, several strong arguments are urged in favor of establishing this Telegraphic communication; among the principal of which may be enumerated:

First.—That the important and constantly increasing intercourse between the Continents of Europe and America, make it a matter of permanent value to facilitate, as much as possible, the transmission of intelligence between them.

Secondly.—That, at present, the Province of Canada is dependant upon the United States for the receipt of the Foreign intelligence brought across the Atlantic by the Cunard and other Steamers; but, by a line from Quebec to Forteau Bay, 705 miles below Quebec, a point is reached distant only 1878 miles from Liverpool, against the 2466 miles between that port and Halifax. By this means, above any that we at present possess or can in any other way obtain, a saving of from 48 to 60 hours in the transmission of intelligence, during the summer, would be effected.

There can be no doubt that, if the line were thus extended to Forteau Bay, the Government of Newfoundland would arrange for its being continued to St. John, at which Port the Steamers for Portland, both inward and outward bound would touch, and from which news would be at once transmitted, thus making this great Canadian Line the medium for the earliest and for the latest information to and from America, Great Britain, and the Continent of Europe.

From the Saguenay, north, where settlement may be said to terminate, there is a succession of Hudson's Bay Posts, and of mill establishments, at each of which, as well as at each of the Light-houses, communicating wires could be arranged, by which local information and messages could be transmitted, such as might be necessary in cases of shipwreck or distress, vessels requiring towage, &c., &c.

The undersigned are of opinion that the subject is one of paramount importance; and they believe that no difficulty would be found in arranging with some of the Telegraph Companies, for the construction and maintenance of such a Line upon such conditions and terms as would serve their own interests as well as those of the public.

RAPIDS OF THE ST. LAWRENCE.

The improvement of such parts of the Rapids as present obstructions to the descent of vessels laden to the depth which the Canals admit of, has long been considered an object of great importance, and has, accordingly, been repeatedly urged upon the attention of Government. The greatly increased facility and cheapness of transport which would be obtained by the removal of the rocks and boulders that cause these obstructions, is acknowledged by all; but various opinions exist as to the practicability of effecting this improvement, the extent to which it is possible to do so, and the probable cost.

In the Annual Report of this Department for 1850, the subject was referred to, and it was therein stated that the then Commissioners of Public Works were of opinion that, as the sum of £15,000, which was proposed for this improvement, was insufficient to effect the work, they were not disposed to recommend any outlay until after further examination, and until the probable amount of expenditure had been fully ascertained.

In the succeeding Annual Report, that for 1851, the Commissioners stated that the further necessary survey and examination had been undertaken, and, although not at that time fully completed, was so far advanced as to enable the then Engineer of the Department to make an *ad interim* report, and to furnish an approximating estimate, in which it was calculated that for the sum of £30,000, a safe and facile channel for vessels drawing 10 feet of water, could be had.

In the Annual Report for 1853 and 1854, the inexpediency of undertaking a work of such a difficult and hazardous nature, without some degree of certainty of accomplishing it within a reasonable approximation to the amount appropriated, was again referred to; and, as a means towards determining this point, the work was advertised, and tenders were called for. But one tender was received, and that from Mr. Maillefert and Raasloff, gentlemen who had acquired some celebrity by the success which attended their operations for the improvement of one of the channels of the Port of New York. This tender was considered of a very peculiar and conditional character. By it they offered "to open and permanently define a navigable channel through the Rapids from Prescott to Montreal; the channel to be 200 feet in width, and of a depth sufficient to admit the passage of a vessel drawing 10 feet of water."—But in the subsequent part of this document they stated—"we possess no information whereupon to base an estimate of the work to be performed,"—and various arrangements and conditions were proposed.

Under such circumstances, it would obviously have been very imprudent to have accepted and proceeded upon such a tender; but the Commissioners entered into an arrangement with these gentlemen for a thorough survey of the Rapids, with a view of really ascertaining where the obstructions existed,—to what extent,—the amount to be removed and its probable cost; and also for the exploding of 50 heavy submarine charges of 125 lbs. of powder each, in order to test the applicability of their system of operation to the work in question, of which the Commissioners entertained strong doubts. To meet the expenses of such Surveys and experiments, the sum of £6,200 was appropriated.

The results of such surveys were not received until after the Report of the Department had been laid before Parliament. They may be stated, in a few words, to be as follows:

That, to obtain a Channel of the dimensions already quoted, an expenditure was required,—

Firstly.	At the Galops Rapids................	£11,232	0	0
Secondly.	At the North Channel of the Long Sault,	17,198	0	0
Thirdly.	At the Côteau Rapids, from Lake St. Francis to Pointe au Diable........	49,365	0	0
Fourthly.	At the Cedar Rapids, from Pointe au Diable to Pointe au Moulin.........	12,500	0	0
Fifthly.	At the Cascades Rapids, from Pointe au Moulin to Lake St. Lonis...........	98,705	0	0
	Total...........	£180,000	0	0

The nature of the work is described in several parts of the Report of Messrs. Maillefert and Raasloff, as "dangerous and difficult, and subject to interruption caused by navigation." Again they say with reference to it,—"it is considered practicable, but will be connected with difficulty and danger, owing to the extreme swiftness of the current and turbulence of the water;"—"will be connected with considerable difficulty, owing to the velocity of the current, over 14 feet in a second, and the waters are very turbulent;"—"will be subject to frequent interruptions by the passage of vessels, and it is to be feared to frequent accidents arrising from collision with rafts, &c.,"—"is considered practicable, but will, owing to the violence of the current, the heavy swell, and the vicinity of the Chute aux Bouleaux, be attended with considerable difficulty and danger."

In several of the Rapids for the improvement of which sums are stated in the estimate above given, vessels drawing 8 feet of water can descend at present. The principal difficulty for vessels of this draft would appear to be in the Cascades Rapids, from Pointe au Moulin to Lake St. Louis; and this is the part which the undersigned would consider it most prudent to commence upon.

The present Channel used by vessels and rafts descending is chiefly on the North side of the River. It is very crooked, and obstucted by several reef of solid rock. Besides this channel there are also a middle and southern channel; the middle channel, taking every thing into consideration, being decidedly the one to be preferred in undertaking the improvement of this portion of the River. When completed, it would be much more direct than either of the others, it is easy of access, would have the current staight down it, instead of across it as in several parts of the channel at present used, and as it is not the course of navigation the work could be carried on without interruption from vessels passing.

The undersigned do not apprehend any serious difficulty in effecting the improvement of this Channel; by the accomplishment of which, with but little extra expenditure, an increased draft of two feet would at once be obtained throughout the whole of the Rapids. Vessels of greater depth than 6 feet cannot at present descend it.

With respect to the removal of the solid rock and boulders in the shoal water of the contemplated Channel, (in some places not over five feet deep,) the undersigned are of opinion that attempting to do so by means of submarine charges of powder contained in tin cases and laid on the rock would be futile. Of the success of this method, where there is a great depth of incumbent water, such as Messrs. Maillefert and Raasloff had the assistance of at Hellgate, (Port of New York,) there can be no doubt; but, without entering into calculation as to the weight that would be required over the powder to enable it to disrupt the rock, or remove the shoals where composed of boulders imbedded in stiff clay, the undersigned are convinced of the correctness of their views by the trifling results of several charges which were exploded under the direction of Messrs. Maillefert and Raasloff, for the purpose of removing some stones and boulders that obstructed a temporary channel at the Junction Canal.

The undersigned are of opinion that the opening of the Channel recommended, can be effected with safety and certainty of result by sinking at the head of the intended cut, say in 13 feet of water, a strong crib, well secured, from which a wing pier should be run out on each side. By this means the contending with the current during the operation would be got rid of. On this crib a portable steam-power could be conveniently placed, with such machinery &c., as would be required to assist in several parts of the operations; and under the lee of such Pier quiet water would be created, where suitable accommodation for the men, and safe lying for the rafts, barges, &c., could be arranged. The removal of the rock, it is considered; could then be effected by ordinary drilling, blasting, &c.

The wharves recommended in a former Report, to which vessels could be moored in case of accident, fog, or being overtaken by night in descending the Rapids, have been placed under contract, and the works are in progress as follows: At Rousseau's Bay, three miles above the Cedars; at Bocco Hayes's Bay, three miles below the Cedars; and another about one mile above the Lachine Rapids. Similar facility is much called for at the head of the Côteau Rapids. The wharves hitherto used, fronting the Village of the Côteau, are in a ruinous state,—they are also, private property. The construction of a suitable wharf there would prove a great accommodation to the trade; whether for the mooring of vessels when approaching night would render it unsafe for them to descend the Rapids; for the taking in of fire-wood; or for the convenience of landing the Mails.

Connected with the improvements of the River St. Lawrence, referred to in the foregoing, there is a matter which seems to the undersigned to be of sufficient importance to be noticed, with the view of drawing the attention of the Legislature to the serious evils arising from it, namely, the accumulation of ice which takes place every second or third year at the head of the Richelieu Rapids, by which the passage of the waters is so obstructed as to raise them to such a height as to overflow a large portion of the low but arable lands of the Parishes of Gentilly, Bécancour, St. Grégoire, Nicolet, La Baie de Febvre, St. François du Lac, Yamaska and Sorel, on the south side of the River; and of those of Berthier, St. Cuthbert, St. Barthélémi, Maskinongé, Rivière du Loup, Yamachiche, Pointe du Lac, the *banlieu* and part of the Town of Three Rivers, Batiscan, and Ste. Anne de la Pérade, on the north side.

This subject has been already before Parliament, during the Session of May 1853, and was thoroughly investigated by a Special Committee. The evidence given before this Committee, and contained in their Report, which was printed by order of the House, appears to the undersigned satisfactorily to explain the cause of the dam or *digue*, taking place; and the means suggested for the prevention of a recurrence of it, namely, the construction of three or more piers in certain positions, near the head of the Rapids, would seem to be well considered, and likely to effect the object for which they are proposed.

The damages caused by the water so overflowing this extensive tract of country are very serious. Part of the fences and bridges are carried away;

timber and other drift substances, and quantities of sand and stones, are deposited, to the great injury of the meadows and other lands; houses, barns, and other buildings, are often destroyed; the cultivation of the overflowed grounds is retarded for a long time, and occasionally prevented altogether; the carrying of the mails is impeded. The navigation of the River is delayed from 8 to 15 days by this accumulation of ice, the conveyance of produce between the eastern and western sections of the Province prevented, and a detention of several days at Quebec caused to the early arriving Atlantic vessels bound for Montreal.

The construction of the Piers suggested to prevent the ice from collecting to such an injurious extent, would cost about £1500, the expenditure of which, even as an experiment, would seem to the undersigned to be justified by the great benefits which would probably be derived from it: and it is shewn satisfactorily, by the evidence before the Committee, that such piers, so far from interfering with the navigation, would afford much facility to vessels and rafts running through that part of the River.

ST. LAWRENCE AND CHAMPLAIN CANAL.

The absolute necessity for this connecting link in the chain of the immense Inland Navigation through this Province and the United States, becomes more and more apparent every succeeding year.

The paramount importance of it, in order to promote the transportation of Upper Canada products by the St. Lawrence and the Canadian Canals—to realise our facilities for competing successfully for the transport of a fair proportion of the Western produce, whether to the sea-board or for the supply of the Eastern States—to induce American shipping to Atlantic ports through Canadian channels—to enable our great staple, lumber, to be transported advantageously to the vast markets of Troy, Albany, New York, &c.,—and for other valuable results, has been so fully and repeatedly urged upon the attention of the Legislature, (see the Reports from this Department of 1847, Honourables W. B. Robinson and C. E. Casgrain, Commissioners; of 1848, Honourables W. H. Merritt and Jos. Bourret, Commissioners; of 1851, Honourables John Young, and H. H. Killaly, Commissioners; and of 1854, Honourables John Chabot and H. H. Killaly, Commissioners;) that the undersigned are incapable of adding more upon the many advantages to the Province involved in this great project. This subject has been ably handled in a pamphlet lately published by the Honourable John Young, which is well deserving of perusal.

At the time the last Report of the Commissioners of Public Works was laid before the Legislature, a general survey for the line of the proposed Canal was being made, under the direction of this Department, by Mr. Jervis, an Engineer of considerable eminence in the United States; and the very elaborate Report made by that gentleman was shortly afterwards published, and laid before the Legislature prior to the close of the Session.

The importance, magnitude, and cost of the proposed work, and the great difference of opinion expressed by professional men and others as to the fittest line and dimensions that should be adopted, as well as the obvious policy of requiring that in the great outlay involved in the project, the wants and interests of the section of the Province below Montreal, now only about to be developed, should be provided for as well as of that above it, and which appeared not to be sufficiently weighed by Mr. Jervis, in the conclusion he came to and the line he recommended, all tended to impress strongly upon the undersigned the necessity of collecting the best opinions and as much information as possible upon every point connected with it, before they ventured to recommend a final decision upon the two main points above adverted to, namely, the line and dimensions to be adopted.

Soon after the receipt of Mr. Jervis's Report, an opportunity was afforded by the presence in this Province of Captain W. H. Swift, (a Civil Engineer of eminence, and who had been for some years Engineer to the State of Massachusetts,) of procuring further valuable advice upon the subject; and as questions had been raised as other routes stated to possess greater advantages, some of which were referred to in Mr. Jervis's Report, but not examined by that gentleman; a surveying party was continued during the season, under the immediate charge of Mr. Gamble, an Engineer of considerable practical experience, to examine not only all such lines, but also to take a variety of cross levels over the country in general lying between the Lakes St. Francis nnd St. Louis and Lake Champlain, in order that, after the most careful exploration and levelling, the question of location might be set at rest satisfactorily.

The Reports of both of these gentlemen are hereunto appended.

It will be found, on reference to Mr. Swift's Report, that he does not concur with Mr. Jervis as to the policy of adopting the line recommended by that gentleman, which is denominated "The Beauharnois or navigable feeder Line.' It starts from the River Richelieu, near the Barracks at St. Johns, ascending 37½ feet and proceeding nearly in a direct line towards Caughnawaga, until within about 4 miles of that village, when it runs westward, and joins the Beauharnois Canal above the 6th Lock, 2½ miles from the lower entrance of that Canal, by which it is proposed to be fed. With this line is proposed a branch (from where it turns off to join the Beauharnois Canal,) to Lake St. Louis, near Caughnawaga, into which Lake it descends by means of five Locks, with 62½ feet of Lockage.

Mr. Swift concurs with Mr. Jervis in fully confirming the perfect practicability of the work, and its importance to this Province.

Upon examining Mr. Gamble's Report, it will be found that the time devoted by him and his party to the full examination and exploring of the country through which all the several routes spoken of would pass, has been valuably spent. The result of his surveys and calculations strengthens his previous recommendation of the line which Mr. Swift reports as being, in his opinion, by far the most expedient to follow. This line is much the same (but with some improvements,) as that originally selected by Mr. Mills. It starts on the level with and from the River Richelieu, at St. Johns, follows the line of the Chambly Canal for 9½ miles, and then turns off for Caughnawaga, descending by two Locks, and entering Lake St. Louis at the same point as the Branch Line proposed by Mr. Jervis.

These three Reports are deserving of the deepest consideration, containing, as they do, a vast amount of valuable statistics, and a number of important and ingenious tables. After a patient and mature consideration of the entire, the undersigned are of opinion that the line following the Chambly Canal, and then crossing to Lake St. Louis, is that which would combine and afford, in the greatest degree, all the advantages contemplated from this improvement.

After attentively examining into the respective merits of the several lines—some six or seven in number—and the arguments of the Engineers thereon, the undersigned are decidedly led to the conclusion that the only contrast or comparison necessary to dwell on is that between "the Beauharnois Line," having the Beauharnois Canal for its feeder, and with its branch to Caughnawaga, as recommended by Mr. Jervis, and the Caughnawaga Line, having Lake Champlain for its supply, represented by Messrs. Mills, Swift and Gamble, as the one to be preferred.

For the sake of brevity, in speaking of these two routes hereafter, the first will be called "Mills's Line," and the other, "Jervis's Line."

Taking the point on the Beauharnois Canal from which Jervis's Line starts, and that where it enters the Richelieu, as common to both, the comparison will stand thus, by Mr. Jervis' measurements and estimates.

Mills's Line, $2\frac{50}{100}$ miles Canal navigation to end of Beauharnois Canal; 14

miles of Lake navigation to Caughnawaga; $34\frac{6}{100}$ Canal navigation to St. John's; or $36\frac{96}{100}$ miles of Canal navigation, 14 miles of Lake navigation, and a total lockage of 87 feet 6 inches in 8 locks, independent of a guard-lock. Cost $3,706,231, or £926,558.

Jervis's Line. $16\frac{19}{100}$ miles of Canal navigation to junction with Branch to Caughnawaga; $21\frac{47}{100}$ miles of Canal navigation to St. Johns, or a total of $37\frac{66}{100}$ miles of Canal navigation, and 37½ feet of lockage in 3 locks. Cost $3,369,400, or £842,350

It will be borne in mind, however, that this comparison holds good only in the case of vessels going westward, as vessels coming from the west would take the much more speedy route of the River, on the Rapids being improved. The vessels collecting in Lake St. Louis, from Montreal, &c., would have to traverse the 14 miles of Lake navigation, to ascend 62 feet 6 inches of the Beauharnois Lockage, and descend 37 feet 6 inches into the River Richelieu. For such trade, —the Montreal and also of the Ottawa, &c.,—the comparison would be:

Mills's Line

Lake navigation, say	3 miles.
Canal navigation	$34\frac{46}{100}$ miles.
Lockage	25 feet.

Jervis's Line.

Lake navigation	14 miles.
Canal navigation	$40\frac{16}{100}$ miles.
Lockage	100 feet.

The accommodation, therefore, for the important trade of the Ottawa and Montreal, would require the Branch from Mr. Jervis's Line to Caughnawaga.

The comparison of the cost of these two routes, therefore, so far as the Western Trade and that of Montreal and the Ottawa are concerned, would stand thus:

Jervis's Line, cost as above	$3,369,400=	£ 842,350
Add, for the Branch to Caughnawaga, to meet the wants of the Ottawa Territory, and for all the Trade collecting in Lake St. Louis, whether from Montreal or elsewhere, per Mr. Jervis's estimate	$ 898,490=	£ 224,622
Add, for the cost of obtaining a much increased volume of water, required to supply three separate sets of descending Locks instead of one, and for other items	$ 280,000=	£ 70,000
	$4,547,890=	£1,136,972

Thus, the real cost of the Jervis Line, when suited to meet the Trade, not only of the West, but of the Ottawa, Montreal, &c., would be	$4,547,890=	£1,136,972
Cost of the Mills' Line, on the same principle		926,558
In favor of the Mills' Line		£210,414

Again, let the important lumber trader seeking the markets of the United States from below Montreal, from the immense valley of the St. Maurice and its tributaries, &c., &c., be considered, and a comparison drawn with it in view.

Mr. Jervis's Line with its branch, leaves the whole of the River Richelieu navigation below St. Johns and the Chambly Canal in its present ruinous state, therefore compelling a vessel with lumber from the St. Maurice, &c., to ascend the River and encounter the current to Montreal, pass through the Lachine Canal, and thence to St. Johns; thus imposing on it the cost and delay of 33 miles of Canal navigation and 145 feet of lockage, with an extra amount of River navigation compared with the route by the Richelieu, which has but 12 miles of Canal and 78 feet of lockage.

It is evident, therefore, that with either the Mills Line or the Jervis Line, the facilities for the Trade below Montreal must be provided for.

The relative costs of doing so in each case would be as follows:

Mills's Line as before, cost	$3,706,231 =	£926,558
But this sum includes the cost of the enlargement of 9½ miles of the Chambly Canal, which would be common to both the Eastern and Western Trades, and leaves but 2½ miles of the Chambly Canal and the Lock and Dam at St. Ours to be improved, cost	776,080 =	194,020
Total cost of providing facilities for *all* the lines of Trade by Mill's Line	$4,482,311 =	£1,120,578
Jervis's Line, to afford the same facilities, cost, as before,	$4,547,890 =	£1,136,972
Mr. Jervis's estimate for the enlargement of the Chambly Canal and St. Our's, as in Mills's line above..........	$2,016,080 =	504,020
	$6,563,970 =	£1,640,992
Deduct for dredging, common to both estimates........	38,500 =	9,625
Total cost for providing for all the lines of trade by Jervis's Line..................................	$6,525,468 =	£1,631,367

The abstract of all the foregoing is, that to obtain the communication with Lake Champlain for *all* the course of Trade that would require it, would cost

By Mills's Line	$4.482,312 =	£1,120,578
By Jervis's Line..	6,525,468 =	1,631,367
In favor of Mill's Line	$2,043,156 =	£510,789

The comparison in cost between the two lines, as given in the above, is based upon the approximate estimates made by Mr. Jervis for his Beauharnois Line with its branch, and that made by him of the cost of Mr. Mill's Line. But from the recent estimate made by Mr. Gamble, from further surveys and measurements, the comparison in favor of Mr. Mills's Line would be much more favorable to the latter, inasmuch as it appears that this line, with the improvement of the Richelieu and Chambly navigation, could be executed upon the same scale as Mr. Jervis's Beauharnois Line, with its Branch to Caughnawaga and improvement of the Richelieu and Chambly navigation, for the sum of £903,092, opposite to £1,631,367 for the Jervis Line; a difference in favor of the former of £728,272.

But even assuming the excess of expenditure involved in adopting Mr. Jervis's recommendation to be but £510,367, it would not be compensated for by any diminution of time or cost of transport, as the undersigned conceive is satisfactorily shewn by the close calculations to be found in Mr. Gamble's Report.

The only remaining point for consideration, in determining upon the works of this proposed communication is that of dimensions, and upon it the undersigned do not fully concur in the conclusions arrived at by Mr. Jervis. This question of dimensions chiefly refers to the depth of water on the sills, the length and breadth of the Locks, and the depth and width of the Canal.

In reference to the depth of water on the sills of the Locks, Mr. Jervis says: "The greatest weight of opinion I have been able to obtain is, that a draft of 9 or "9½ feet is as much as can be profitably adopted for general use, and that 10 feet "is the extreme depth that should in any case be adopted, and only for ports of "best water." He subsequently adds,—"it may be said, the increasing volume "of Lake Trade, will lead to improvement in harbors, to the deepening of the "St. Clair Flats, and so essentially improving the depth of water as to provide "for deeper vessels, and thus removing the objection to greater depth;" and, "so far as I am acquainted with the Lake Harbors, I do not see a prospect of "any great change being made in the depth of water." He finally recommends the depth to be 10 feet of water on the sills. In this conclusion the undersigned fully concur; more particularly as the Welland and many other Canadian Canals carry that depth, as all are capable of being improved to the same capacity at a small cost, and as the improvement of the navigation of Lake St. Clair is now actually in progress.

Mr. Jervis recommends the depth in the Canal to be one foot more than that of the Locks. From the experience had of the working and maintenance of our Canals in that section of the country, and the rapid deposit which is found to take place in the bottom, from the wash of the banks, owing to the purely aluminous nature of the soil, and which facing them in any way will not wholly prevent, the undersigned would recommend that the bottom of the Canal, when formed through clay, should be two feet below the sills of the Lock. In rock-cutting, hard-pan, &c., one foot below that level will be sufficient.

With respect to the breadth of the Canal, the undersigned are of opinion that 80 feet width at bottom, through heavy cutting, will, in the first instance be sufficient, especially as on examining the level and section, they find that for a very large proportion of the line, twice that breadth, or more, can be had without increase of expense, and hereafter, when the trade would demand it, the narrow portions of the Canal could be widened without interfering with the navigation.

Upon the length of the Locks, Mr. Jervis observes:—"It is believed the most "economical transport would be secured by providing for Propellers of five to "six hundred tons burthen, which would be secured by a Lock two hundred feet "long" &c. * * * * For the accommodation of present naviga-"tion, I am of opinion that Locks two hundred feet long and ten feet deep, by "thirty-six feet in width, will provide for Propellers adapted to make as economi-"cal a transportation as can be effected;" but further on he adds:—"If it shall be "considered advisable to provide for greater length of vessel, say thirty feet, it may "be done for about four thousand dollars per Lock. This additional length may "be made at a future day, when it shall appear necessary." He finally thus concludes:—"And while I have doubts as to the necessity, I must confess, that "in view of all the probabilities involved, I am disposed to recommend two "hundred and thirty feet as a suitable length for the Locks."

The cost of obtaining this additional length of thirty feet is correctly stated, if it was had in the first building of the Locks; but the cost of obtaining it "at a future period" would be at least fourfold, if not much more. It would then have to be done during the non-navigation season of the year, a season most unfit and expensive for masonry operations. The entire of one pair of recess-walls for the gates, with all their piers, wing-walls, &c., would have to be removed and rebuilt. The entire of the platform for those gates, with the mitre and other sills, would have to be reconstructed. There should, therefore, be no hesitation in adopting that length, at least, in the first instance, by which the undersigned understand that the Lock is to be such as to pass a boat of two hundred and thirty feet in length.

As to the breadth of the Locks, Mr. Jervis enters into the question of the description of vessels that should be provided in determining on the dimensions of the Locks of this Canal, and these he is of opinion should be of the Propeller class, for which he considers thirty-six feet in width suitable in every way. In reference to side-wheel steamers he states that,—"the Welland Canal Locks do "not provide for side-wheel steamers, nor is there any occasion for such vessels "to pass through it."—Again,—"side-wheel steamers, as passenger boats, pass "down the St. Lawrence and return by a portion of the St. Lawrence Canals. "These boats do not require so long a Lock as would be required by the largest "class of Propellers that navigate the Upper Lakes, but the side-wheels require "more width of Lock than Propellers. Is it probable that the proposed Canal "from the St. Lawrence to Lake Champlain will require Locks of such width "as necessary for side-wheel passenger boats? I think not. It is even doubtful "if they can be supported between Ogdensburg or Prescott and Montreal, after "the Railway now in progress of construction along the bank of the St. Law-"rence is put in operation.

Mr. Jervis subsequently refers to experiments that have been made to propel vessels by side-screws, and says:—"Should side-screws be adopted to any con-"siderable extent, a wider Lock would be required than for the stern screw." But he is of opinion that there does not appear sufficient probability of such use of side-screws as to warrant the expense of providing for them.

The undersigned, under all the circumstances, are of opinion that the width of the Lock should not be fixed at less than forty-five feet, the breadth of the existing Locks on the St. Lawrence Canals, and of those at the terminus of the Welland Canal.

The difference in cost between a Lock forty-five feet wide and one thirty-six feet wide is comparatively very trifling. All the masonry, the expensive portion of the machinery, the attendance, &c., are common to both; the chief extra cost of the former being confined to a moderately increased breadth of gate and bottom.

Limiting the breadth to thirty-six feet would shut out from the use of this Canal a great number of steam vessels which now navigate through the whole of the St. Lawrence Canals, the entire property embarked in which may be said to be destroyed, if, as Mr. Jervis anticipates, they can no longer be employed as passenger boats on the River, after the opening of the Railway, and are debarred the use of the Canal under consideration by the Locks being made nine feet too narrow to pass them freely. Mr. Jervis makes no allusion whatever to sailing craft, which the undersigned, while admitting the advantages of propellers in some respects, believe, will continue to compose a large proportion of the vessels which will be used for transport in the trade for which this navigation is intended. For such vessels, singly, it is true, Locks of thirty-six feet in width are more than enough; but in the working of the Welland Canal very great convenience and despatch are obtained by being able to pass through the Locks of forty-five feet in width, in one Lockage, two of nearly the largest class schooners, and frequently three of those of the ordinary size. Were all the other Locks of like breadth, there is no doubt but that great detention would be avoided and the capability of the Canal most seriously increased. This class, (sailing craft,) usually come in fleets, as the wind serves, and the advantage of passing two or three at a time is unquestionably proved to be so great, that taken in connection with the inexpediency of shutting out from the benefits of the Canal those vessels now navigating the St. Lawrence Canals, and the undetermined question as to whether the side-screw principle may not yet be so applied as to require a greater breadth of Lock, the undersigned are decidedly of opinion that the latter should not be less than forty-five feet, especially as the saving to be effected in adopting thirty-six feet Locks would be comparatively but very small; and they are further of opinion that the estimates submitted would be found ample to include the cost of constructing the Locks of the width of forty-five feet.

The foregoing arguments upon the dimensions of the Locks are brought forward, it will be perceived, chiefly with the view of shewing that, under no circumstances ought the Locks on the proposed navigation to be of a width less than that of the existing Locks of the St. Lawrence Canals. The undersigned, however, entertain grave doubts of the prudence of limiting the Locks even to those dimensions. The evident tendency in all the improvements of the navigation by the Lakes and Canals is towards enlargement. The Lock lately built at Sault Ste. Marie, by the Government of the United States, is 65 feet wide by 350 feet long. It is true that the small amount of Lockage which was necessary to overcome the obstructions in the navigation between Lake Superior and Lake Huron, &c., left no doubt as to the propriety of adopting for that position these full dimensions; and it may be said that, to reap advantage from Locks of similar dimensions on the Champlain Canal, would render necessary an enlargement of all the Locks of the St. Lawrence and Welland Canals. Few, probably, will be found to assert that such enlargement may not be decided on at a future day; in view of which, the adopting of the maximum dimensions for the two Lift Locks and one Guard Lock on the Champlain Canal, seems to the undersigned highly deserving of consideration, before smaller Locks should be ultimately decided on.

The many varied and ingenious schedules and tables, together with the great amount of valuable statistics bearing upon points under consideration, to be found in the Reports of Messrs. Mills, Jervis, Swift and Gamble, all tend to show the importance to Canada of this contemplated work, and leave the undersigned nothing further to add upon the subject.

COMMUNICATION BETWEEN CANADA AND NEW BRUNSWICK.

The selection of the most suitable line for this communication has been attended with a considerable amount of surveys and examination, as various conflicting opinions ran strongly in support of several routes, especially so far as regarded their terminations on the River St. Lawrence. The one starting from the Rivière du Loup was finally decided upon, as it was conceived to afford the greatest advantages, whether as regarded its termination on the St. Lawrence or the general facilities for its construction. Departing from the River St. Lawrence at the Village of Rivière du Loup, it follows, generally, the line of the present route to Lake Temiscouata, and thence to the Dégelé, where it falls in with the good road on the west side of the Madawaska River to its junction with the St. Johns' River, and thence along the east side of the latter to the Province Line.

In stating that it takes the general course of the present road known as the Temiscouata road, it is to be understood, however, that it departs from it in several places, to avoid hills and swamps, and for the general improvement of the line.

The state of this Road hitherto has been such as to render the carrying of the mail on it, even on horseback, at times impossible, and the annually increasing amount of supplies required to be diverted into that section of country over this road, for the use of those engaged in the lumbering operations, strongly urged the necessity of having it improved and made available for traffic at as early a date as possible. A contract has been concluded with Mr. Baby for the works of the improvement and completion of this line of communication; and no doubt is entertained, from the capability and energy displayed by that gentleman in carrying out the works for which he has hitherto been contracted with, that the progress under this contract will be rapid and satisfactory.

The works have been undertaken by Mr. Baby at the estimate of Mr. J. F. McDonald, an Engineer sent by this Department a considerable time since to lay out the work and form an estimate of the cost; and, from the increase in the value of labour and materials between the time of his having done so and that of entering into the contract, the undersigned are satisfied that the public interests have not suffered by it, whether as regards economy or the prompt and satisfactory progress of the work.

GROSSE ISLE QUARANTINE STATION.

During the past year several repairs and improvements have been made at this Station, and others are in progress, namely:

Two of the buildings displaced by ice in 1854 have been replaced, and two wells, &c., &c., have been sunk.

A Contract has been entered into for a large Wash-house, a Dead-house, and four other indispensable buildings. These works are so far advanced as to leave no doubt of their being completed by the opening of the Navigation.

From the temporary character of the several buildings comprised in this establishment, and the hurried manner in which most of them were erected, at times of existing or anticipated emergency, their maintenance has been for years attended by a very heavy annual expenditure.

PUBLIC BUILDINGS.

Court Houses and Jails.

The erection and repairs of buildings of this class in Lower Canada, are under the control of the Department of Public Works. The chief expenditure of this kind, since the date of the last Report, has been on the new Court-house at Montreal. Unexpected delay has taken place in the progress with these works, but they are now in such a state of forwardness as will enable the Department to deliver up the building into the hands of the proper officer on or before the early part of May next.

But little outlay has taken place, during the last year, upon the Montreal Jail. The works of the new wing have been completed under the immediate supervision of the Jailer, and in part by convict labour.

The Commissioners of Public Works, for the time being, have made repeated representations of the inadequacy of this building in every essential requisite of a proper prison, whether as regards inclosure, employment and safe-keeping of the prisoners, separate airing-yards, work sheds, day rooms, ventilation, classification of prisoners, &c., &c. This statement applies to every one of the Jails with which this Department is connected, so far as it may be considered to be from their repairs being effected under its control. In fact, some of them are a disgrace to any civilized country, and it is with much reluctance that the Commissioners have found themselves the medium, unavoidably, through which expenditure has from time to time been incurred upon a number of them, which are not only utterly unfit for their purpose, in their present state, but incapable of being made suitable at any cost. The outlay upon them, therefore, has been restricted to the lowest possible extent.

Plans for a new Jail for the City of Quebec are called for by public advertisements; and so soon as one may be decided on, and its cost ascertained, an estimate to cover the expenses of its erection will be submitted to Parliament.

Upon the periodical arrival of the spring and fall fleets, many of the sailors, as is usual in other large ports, commit trifling breaches of the peace, and subject themselves to be sent to Jail for short periods. The number of such committals is, at times, very considerable; and, from the limited extent of the building, not only does great inconvenience arise therefrom, but those men are, occasionally, necessarily confined with old felons, or with those charged with heinous offences,

In adopting plans for this Jail, it is obvious that provision should be made to meet such cases as those just adverted to; and also that the great necessity now existing for an Asylum for juvenile offenders, should be kept in view, in order that the plans may be such as, with economy and efficiency, will admit of the two Institutions being, to a certain extent, combined, either in the first instance, or at a future period.

The works required for the drainage, and introduction of water to the present Jail and Court-house of Quebec, as called for by the Sheriff, were completed during the past year; and those connected with the distribution of the water through the different apartments are now in progress.

The entire of the Jail of Sherbrooke is in a ruinous, dilapidated state; and the walls surrounding it are in a similar condition. To place it in anything like a proper state of repair, would cost as much as, if not more than to construct a new building. It is believed, therefore, that any outlay beyond what will barely preserve it for present use, would be injudicious. To effect that object, the following repairs are indispensable:

Relaying and securing a portion of the roof-tinning. Alterations to water-closets. Taking down and re-building the front fence wall, which is in a dangerous condition.

To the Court-house of Sherbrooke the following repairs are indispensably necessary:

Renewal of the whole of the sleepers, floor and skirting of the basement story, as they are completely decayed.

Removing the tinning of the roof, relaying such portions of it as may be suitable, and having the joints properly lapped, to prevent injury to the wood-work and ceiling by leakage.

Replacing of the entrance steps, which have been displaced by frost; and renewal of the platform, which is rotten.

Repairing the plaster where destroyed by leaks; and giving the exterior wood-work two coats of paint.

Fencing the ground around the Court-house buildings.

At the St. Hyacinthe Court-house, the exterior walls, the steps and platform to the principal entrance, the chimney-tops, and other portions of the building are in a ruinous state. If not repaired early in spring, the subsequent cost of repairing this building will be much augmented.

The Court-house at Aylmer has been completed since the last Report.

Post Offices.

Some expenditure has necessarily been incured upon the Post Office of Toronto, the covering of which was found to be very defective.

Some improvements have been effected to the Post Office of Montreal, suggested by the Post Office authorities.

The Post Office of Hamilton is nearly completed, and will shortly be available for business.

Plans had been prepared for a Post Office at Kingston, but, as the Architect had united it with the proposed Custom-house, and it was considered more advisable that each building should be erected independent of the other, the Plans are being modified, and will be ready in a few days. An addition to the amount appropriated for this buiding will probably be required, but to what exact amount cannot be stated until the estimates are received.

The erection of the new Post Office at Quebec has not yet been commenced, owing to the unsuitable nature, difficulty of access, &c., &c., of the site selected for it.

Custom Houses.

In the last Report from this Department, it was stated that, for the sum of £3000, a site had been purchased for a Custom-house at Quebec; but, on further consideration, this site was considered too small, and another one, nearly in the same locality, has been obtained, under the authority of an Order in Council, for the sum of £8000,—the proprietor of which takes the site first acquired at the price paid for it. Advertisements calling for plans for this work have been inserted in the papers; and upon one being selected, and the cost ascertained, an additional appropriation may be required; as the extent of the building which the great amount of the business of the Port must demand, and the nature of the foundation, will necessarily involve a large expenditure.

The undersigned would here take the opportunity of refering to the Point Levy Ferry, as being in some measure connected with the contemplated Custom-house, as well as with the trade carried on on both sides of the River.

By the Act 16 Victoria, chap. 222, the full control and management of the Ferries is given to the Government; and by the third section of this Act, among other powers given to the Governor in Council, is that of "determining the size "and description of the vessels to be used on any such Ferries by the persons "holding licenses in respect thereof, and the nature of the accommodation and "conveniences to be provided for passengers carried in such vessels."

Considerable public dissatisfaction has been felt and expressed at the irregularity of this Ferry, and at the want of landing accommodation for the Steam Ferry Boats which ply between Quebec and Point Levy; and it seems to the undersigned to be very desirable that just grounds for this complaint should be removed, by having convenient sites with suitable facilities for the landing of passengers with their effects appropriated for these Ferries solely. A decision upon this matter, without unnecessary delay, is the more required, in consequence of the increasing occupation of the beach lots at or near where such Ferry Slips should be established.

The revenue from the Ferries would, it is presumed, cover any unnecessary outlay on the acquisition or improvement of the required sites and wharves.

Much dissatisfaction is expressed at the insufficiency of the accommodation afforded by the Custom-house Building of Montreal. In the course of last year a suggestion was make to raise the building a story, but on examining into the subject, the undersigned found that such addition would by no means afford the office room, the want of which is complained of, but would merely provide better lodgings for the House-keeper. From the plan of the building, and an extension of it on any side not being practicable, bounded as it is on three sides by narrow streets,—it is believed that the better course would be to procure another suitable and more extensive site whereon to erect a Building commensurate with the wants and importance of the Port, and to dispose of the present premises.

MARINE HOSPITAL, QUEBEC.

The Contractor for the masonry and carpenters work of the new Wing to this building having abandoned the work, it was re-let to another party, who has executed, in a satisfactory manner, all the work embraced in his Contract.

Mr. Gauvreau, the Overseer in charge, as well as the Commissioners of the Institution, consider it very important that the interior of this building should be completed as early as possible, and a system of heating and ventilation decided on, so that the work connected with both may progress simultaneously. They are also of opinion that a like system of heating and ventilation should be established in other portions of the old buildings, for the comfort and health of the inmates, as well as for economy in the article of fuel; and they consider the extent of airing ground inadequate to the number of persons frequently collected there. In these recommendations the undersigned fully concur. The whole of the space between these premises and the bank of the River is Provincial property; and as no revenue is derived from it, the undersigned see no reason why a sufficient portion of it should not be laid off, so as to enlarge the Hospital grounds, and the remainder divided into two lots, and leased for ship-building purposes, for which it is well adapted. By adopting this mode of disposing of the property, it would bring in a good revenue, which might be applied either to the Hospital or to such other purposes as the Government might see fit.

A wall sufficient to inclose the "airing-grounds," should be 660 feet in length, 10 feet over ground, and 6 feet under it.

The Commissioners of the Marine Hospital having represented that certain repairs and improvements were necessary to the building, these, in detail, were submitted to Mr. Gauvreau, for report and estimate; and they are to be classified and estimated for as follows:

Indispensable Repairs.

Inside wall; tinning of roof; painting interior of house; sky-light; covering balcony with lead, putting up iron railing around it; planking cellars, &c., £586 13s.

Considered Necessary.

Exterior work, such as levelling ground, making roads, and erecting sheds in rear of building, for exercise of convalescent patients. Repairs to wharf built for protection of main building, £787 10s.

Improvements.

Continuation of wall and railing up to northern extremity of wings with suitable Street-lamps; planting trees all round the building; continuation of Water Street, east side, for a road; construction of wharf 100 feet by 20 feet for landing sick emigrants at the Hospital; exhuming the bodies interred in the adjoining property, £1650.

SURVEYS.

The importance of opening a thorough line of communication from Montreal by the line of the Ottawa, Lake Temiscouaning and French River to Lake Huron, has, of late, attracted a large share of public attention. The Board of Trade of the City of Montreal, the Corporation of the City of Ottawa, the Municipalities of several of the Counties which would be traversed by this route, have taken the matter up, and several Petitions connected with it have been presented to the Executive.

The expediency of improving the navigation of the Ottawa by making it continuous, so as to avoid the numerous transhipments that necessarily take place at present, has been, for some years, admitted; and an appropriation of £50,000 was made towards the commencement of the works, which are of such a nature, and so situated that, on the completion of each separately, immediate benefit will be derived therefrom. On the completion of the Chats Canal, the delay and expense of trans-shipment and portage between Lake Chaudière and Chats Lake will be got rid of, and a continuous navigation opened from Aylmer to the Chats. In like manner, when the improvements at the City of Ottawa (of which a survey and estimate have been made) are effected, an uninterrupted navigation will be opened down to Montreal. Had the Canals at Carillon and Grenville, known as the "Ordnance Canals," been the property and under the control of the Province, it is probable that the improvements would have been commenced with them; and, doubtless, on their becoming Provincial property, their enlargement and improvement will be provided for.

All such improvements to the navigation have been undertaken with the view of their being carried out to such extent as the Ottawa is capable of, at a reasonable outlay, and as the conveying of supplies for the Lumber Trade, and the opening and settlement of the country would appear to demand. The dimensions of the Locks were proposed to be the same as those of the St. Lawrence navigation, but with a less draft of water, namely 6 feet 6 inches on the sills, which, it was considered, would be found ample for the water communication contemplated, and could not well be increased, owing to the depth of the River itself in places, except at a greatly increased expense.

This communication, however, as the subject is now taken up, is contemplated for much more extended objects; and principally for the opening of a new route, which, it is represented, would become that for the conveyance of a large proportion of the produce of the far West to the seaboard, and would also be the channel for the transport of the manufactured lumber to the great markets of Chicago, &c.

No actual surveys or reliable examinations have as yet been made with a view to the construction of such a communication, nor has any information of practical importance been obtained with reference to it; but the subject is of such importance, as to induce the undersigned to recommend that a general survey and exploration of the line should be authorised and provided for; and at no time could such be carried on more effectively and economically by this Department than at the present. The period of such survey should embrace the winter as well as the summer, as it would be important to observe the state and character of the rivers and waters at every season. This survey should not be made with a view to the creation of a water communication alone, but should be so conducted as to afford full and ample opportunity of reporting upon the greater facilities or otherwise which may be found to exist for the adoption of a Railway communication through that territory, either in whole or in part, instead of the suggested navigation.

The undersigned conceive they cannot better conclude the foregoing Report upon all the Works under their charge, than in the very words, nearly, of the closing paragraph of their last Report. The large number of additional Lighthouses either built or in course of construction from the Coast of Labrador to the Sault Ste. Marie, will materially tend to facilitate and render safe the navigation of the Gulf, River, and Lakes. If to these improvements be added that of the Rapids of the St. Lawrence, the increasing of the capability of the Welland Canal, and the connecting the waters of the River St. Lawrence with those of Lake Champlain by a suitable Canal, as has been so often recommended, it appears certain to the undersigned that this route must, beyond doubt, command its full and remunerative share of the present and vastly increasing trade from the West to the New England States, the West Indies, and Europe.

A strong argument in favor of not postponing these improvements is adduced in the Report made in May last by the Committee on Trade and Commerce, of which the Hon. W. H. Merritt was Chairman, namely:—that at present, the toll on a barrel of flour by the Erie Canal from Buffalo to Albany is 22½ cents, which toll must, by the constitution of the State of New York, be maintained, and cannot be effected by Legislative interference until the Canal debt is paid off. This event, assuming the present amount of traffic as a basis, would take place in 18 years, when the toll could be seriously lowered. So, in proportion as traffic is induced from it to Canadian routes, this reduction will be procrastinated and a remunerative amount of Trade will, in the interim, be firmly and permanently secured to Canada.

All the foregoing respectfully submitted.

F. LEMIEUX,
Chief Commissioner of Public Works.

HAMILTON H. KILLALY,
Assistant Commissioner of Public Works.

Department of Public Works,
Toronto, March, 1856.

No. 1.

Statement of the Works of Canada under charge of the Department of Public Works which yield Revenue, shewing the cost of construction thereof under that Department, to 1st January, 1856; the Expenditure of the years 1854 and 1855; also the cost incurred for Repairs and Management.

Works.	Cost of construction to 1st January, 1856.			Expenditure in 1854, included in foregoing column.			Expenditure in 1855, included in foregoing column.			Cost of Repairs and Management in 1854.			Cost of Repairs and Management in 1855.		
Canals.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Welland	1061447	6	6	18893	5	2	22943	14	10	24852	10	4	30594	19	9
St Lawrence.															
General Expenditure	15822	10	9	663	12	7	2673	6	8	13	5	9	36	17	7
Williamsburg	267208	7	8	2835	13	7	2272	15	4	1933	7	8	2428	4	5
Cornwall	106058	5	7	837	3	10	4443	18	3	3138	13	7	3712	8	6
Beauharnois	365331	4	7	7185	2	5	14694	3	5	5835	12	4	4628	5	5
Lachine	481736	1	8	4623	4	11	16853	18	1	4573	9	9	8078	7	8
Junction	38779	16	10	6810	18	5	14411	7	4	....			....		
Chats	81158	10	1	16122	8	9	14377	14	9	....			....		
Chambly	16863	6	8	....			....			1745	8	8	1617	1	9
St. Ours	38219	8	3	150	0	0	261	2	0	693	15	11	849	4	0
Burlington Bay	56798	8	0	....			5841	18	9	....			1581	6	6
Ste. Anns	23660	8	8	33	0	0	864	13	6	242	19	3	221	17	3
Slides, &c.															
Ottawa	117647	19	8	8363	0	4	14913	4	5	2101	14	1	3234	5	0
Trent and Newcastle	88025	19	0	184	0	3	11081	9	2	1032	6	8	271	13	0
St. Maurice	48699	1	11	15243	17	9	10435	10	1	1816	12	4	2072	1	7
Harbours.															
Port Stanley	35376	8	2	2338	0	0	3944	3	4	....			....		
Bridges.															
Bytown	16612	3	11	....			....			....			....		
£	2809435	7	6	84283	8	0	140012	14	11	47979	16	4	59326	12	5

No. 2.

Statement of Works of Canada under the charge of the Department of Public Works from which no revenue is derived, shewing the amount expended thereon by that Department, during the years 1854 and 1855.

	Amount Expended 1st January, 1854.			Amount Expended during 1854.			Amount Expended during 1855.			Total Amount.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Public Buildings	17732	8	3	7045	12	1	6124	19	4	30902	19	8
Toronto.												
Parliament House, Government House, and Elmsley Villa	17496	12	5	5423	9	7	28472	9	8	51392	11	8
Post Office	3587	8	4	2762	7	9				6349	16	1
Custom House							965	9	11	965	9	11
Montreal.												
Court House	32067	11	7	10901	16	1	13225	19	3	56195	6	11
Gaol	3879	5	11	995	17	6	171	2	11	5046	6	4
Post Office	1347	3	0	8704	18	11	682	9	0	10734	10	11
Custom House							137	5	0	137	5	0
Quebec.												
Post Office	4003	14	1	9	7	6				4013	1	7
Chateau St. Louis	3344	15	11	84	16	2				3429	12	1
Spencer Wood	23616	0	9	10708	10	6	1339	17	3	35664	8	6
Marine Hospital	995	7	10	4998	6	5	5004	7	11	10998	2	2
Custom House	3000	0	0				68	18	4	3068	18	4
Gaols and Court Houses	7044	15	1				100	0	0	7144	15	1
Aylmer	5886	16	9	599	0	10	45	8	5	6531	6	0
Quebec Court House	3623	16	0	4223	12	8	1129	9	11	8976	18	7
St. Lawrence.												
Towage, Upper	8600	0	0	4462	10	2	7468	3	5	20530	13	7
Towage, Lower				7076	18	11	18592	6	8	25669	5	7
Landing Piers	74007	12	3	63707	15	1	29745	10	0	167460	17	4
Emigration	158	10	0	276	9	6	1519	8	6	1954	8	0
Grosse Isle	7257	19	7	1549	3	3	797	13	0	9604	15	10
Arbitrations	31654	19	3	5716	15	1	31144	4	11	68515	19	3
Surveys	2592	5	2	590	12	3	1886	6	6	5069	3	11
Removals.												
To Toronto							15536	0	9	15536	0	9
To Quebec	11160	3	2	45	9	0				11205	12	2
Light Houses.												
Inland	18037	6	11	6916	13	7	3375	17	11	28329	18	5
Below Quebec				4743	19	3	33823	4	11	38567	4	2
Hamilton.												
Post Office	2000	0	0	2431	0	0	5818	2	7	10249	2	7
Custom House							2015	2	9	2015	2	9
Roads.												
North Toronto	40870	0	4	28	7	11				47516	8	11
East Toronto	6618	0	8									
Kingston and Napanee	52	17	2	150	0	0				202	17	2
Chambly and Longueuil	214	9	2				2	12	6	217	1	8
Stanstead	5887	17	6				50	0	0	5937	17	6
Temiscouata	1032	14	7	996	18	11				2029	13	6
St. Lawrence and New Brunswick	809	3	9	1468	13	7	1336	14	5	3614	11	9
Coteau and Cornwall	3206	19	4	1143	19	0				4350	18	4
Harbours.												
Rondeau	18684	8	6	4	16	10				18689	5	4
Lake Huron							5642	9	11	5642	9	11

No. 2.—(*Continued.*)

	Amount Expended 1st January, 1854.			Amount Expended during 1854.			Amount Expended during 1855.			Total Amount.		
Bridges.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Jacques Cartier	4181	18	7	203	10	0				4385	8	7
St. Maurice	17885	6	10	13	15	0				17399	1	10
Miscellaneous.												
Lake St. Peter	202	16	7	135	0	0				337	16	7
School Navigation	982	9	4	5189	8	3	197	19	10	6369	17	5
Water Police	118	7	6	37	10	0				155	17	6
Montreal and Kingston Railroad	3181	9	11	40	0	0				3221	9	11
Quebec Observatory	51	13	5	6	16	5	44	9	0	102	18	10
Montreal High School	4580	0	0				8	0	0	4588	0	0
Geological Museum	380	18	10	207	18	3	404	4	1	993	1	2
Shipping Office	42	0	4	64	0	3	30	0	0	136	0	7
Boundary Survey, Canada and New Brunswick	3894	3	2	2088	13	9	2257	18	9	8240	15	8
Chateau Garden Wall	550	16	11	413	4	9				964	1	8
Plans for Admiralty	100	0	0	300	0	0				400	0	0
Chambly Canal Claims	120	0	0				140	10	8	260	10	8
Improvement St. Lawrence				4165	17	9	1985	6	3	6151	4	0
Improvement Durham Terrace				2148	12	3	962	9	3	3111	1	6
Legislative Assembly				1450	2	6				1450	2	6
Nunnery				6879	12	11				6879	12	11
Fire Parliament Buildings				1207	12	4				1207	12	4
Provisions for "Doris"				512	12	5				512	12	5
Bonner Property				5292	13	4	153	5	0	5445	18	4
St. Regis Custom House				339	5	0	17	10	0	356	15	0
Provincial Observatory				1945	0	0	1088	2	3	3033	2	3
Survey Champlain Canal				844	0	7	5415	8	4	6259	8	11
Conveying Dr. Fortin				1320	0	0				1320	0	0
Do Governor General				302	15	0				302	15	0
Do Election Writs				390	0	0				390	0	0
Adjutant General Militia				19	8	9				19	8	9
Trip Members to Saguenay							1935	3	9	1935	3	9
Services of Steamers							1140	0	0	1140	0	0
Building Schooner							3198	2	2	3198	2	2
Ocean Steamers							27809	10	7	27809	10	7
Trinity House, Quebec							2000	0	0	2000	0	0
Brantford Road Repairs							3	4	0	3	4	0
£	396248	4	8	193285	7	10	265012	19	7	854541	12	1

No. 3.

A DETAILED STATEMENT of Expenditure on the Provincial Light Houses connected with the Inland Navigation, for the years 1854 and 1855:

	NAME OF LIGHT.	NAME OF KEEPER.	EXPENDITURE IN 1854.									EXPENDITURE IN 1855.								
			Salaries.			Supplies.			Total.			Salaries.			Supplies.			Total.		
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1	Goderich	Thomas Brady	65	0	0	151	13	0	216	13	0	65	0	0	162	8	4	227	8	4
2	River Thames	Claude Cartier	58	15	0	55	6	9	114	1	9	108	15	0	96	18	4	205	13	4
3	Bois Blanc	James Haskell	87	10	0	220	14	7	308	4	7	85	0	0	109	0	1	194	0	1
4	Pelée Island	James Cumming	87	10	0	288	6	0	375	16	0	87	10	0	168	6	11	255	16	11
5	Long Point	Moses Newkerk	90	0	0	395	1	3	485	1	3	87	10	0	73	9	1	160	19	1
6	Long Point Light Ship	Peter Baillie	135	0	0	115	12	9	250	12	9	135	0	0	33	5	7	168	5	7
7	Port Burwell	Alexander Sutherland	67	13	0	62	1	1	129	14	1	65	7	6	66	3	3	131	10	9
8	Port Stanley	Richard Smith	29	1	0	50	0	0	79	1	0	55	15	1	...	...	...	55	15	1
9	Mohawk Island	John Burgess	87	10	0	5	0	7	92	10	7	87	10	0	131	19	1	219	9	1
10	Port Colborne	James Fortier	65	0	0	282	15	10	347	15	10	65	0	0	133	1	4	198	1	4
11	Port Maitland	Charles D. Parnell	65	0	0	142	7	1	207	7	1	65	0	0	159	1	7	224	1	7
12	Port Dalhousie	Jonathan Woodall	65	0	0	261	0	10	326	0	10	65	0	0	100	10	9	165	10	9
13	Burlington Bay	John Davidson	100	0	0	181	12	10	281	12	10	100	0	0	101	14	2	201	14	2
14	Gibraltar Point	James Durnan	42	10	0	296	8	9	360	3	9									
		George Durnan	21	5	0							106	5	0	125	13	1	231	18	1
15	Gull Island	George Roddick	87	10	0	318	5	4	405	15	4	87	10	0	132	11	7	220	1	7
16	False Ducks	Joseph Swetman	102	10	0	353	2	10	457	12	10	102	10	0	194	2	7	296	12	7
17	Presqu'isle	William Swetman	77	10	0	294	14	6	372	4	6	70	0	0	247	19	3	317	19	3
17½	Presqu'isle Leading Light	William Swetman, Jun.	...	...	...	...	...	...	...	...	...	37	10	0	37	3	8	74	13	8
18	Point Peter	William A. Palen	85	0	0	253	2	9	338	2	9	85	0	0	119	5	9	204	5	9
19	Nine mile Point	Thomas Sparkam	87	10	0	128	17	8	216	7	8	21	5	0	182	5	8	248	10	8
		John Dunlop	...	...	...	...	...	...	...	...	...	45	0	0						
20	Lancaster	Thomas Hill	50	0	0	58	14	10	108	14	10	50	0	0	33	18	1	83	18	1
21	Marker's Point	Alexander McDonald	35	0	0	45	9	0	80	9	0	55	0	0	3	3	4	38	3	4
22	Cherry Island																			
	Lancaster Floating Light	E. S. Johnson	85	0	0	99	16	0	184	16	0	85	0	0	140	15	11	225	15	11
23	Grosse Point	Peter Shannon	85	0	0	147	12	10	232	12	10	85	0	0	95	14	2	180	14	2
24	Beauharnois	Joseph Miloche	45	0	0	131	14	8	176	14	8	45	0	0	38	18	4	83	18	4
25	Chateauguay Shoals	Pierre Laudre	50	0	0	56	4	10	106	4	10	56	10	0	37	13	9	94	3	9
26	Chateauguay No. 3	B. Carynon	50	0	0	59	11	7	109	11	7	31	10	0	...	...	...	...	...	...
		Benjamin Picard	...	...	...	...	...	...	...	...	...	12	10	0	67	11	0	111	11	0
27	Lachine Pier	John Norton	75	0	0	97	5	0	172	5	0	93	15	0	7	5	7	101	0	7
28	Port Dover	William Fifield	...	...	...	...	...	...	...	...	...	...	...	...	64	13	0	64	13	0
	Management, Postage, Freight, &c.		...	...	...	683	18	8	683	18	8	...	...	...	1511	17	1	1511	17	1
	Reflectors, Lanterns and Stoves		...	...	...	810	14	5	810	14	5	...	...	...	...	...	...	...	...	...
															4376	10	4	6498	2	11
	Less am't. supplies taken from Store		...	...	...	...	...	...	...	...	...	...	...	...	103	8	6	103	8	6
			1981	14	0	5238	11	10	7220	5	10	2121	12	7	4273	1	10	6384	14	5

No. 4.

Statement of Amounts paid on awards for damages on each work, since date of last Report, also, amounts paid to arbitrators or Commissioners, for services and expenses, up to 1st January, 1856.

	£ s. d.	£ s. d.
Beauharnois Canal	31185 12 6	
River Trent	319 10 1	
Lachine Canal	197 7 11	
Cornwall Canal	57 10 0	
Welland Canal	1589 13 1	
Ottawa Works	125 10 0	
Scugog	350 0 0	33825 3 7
Amount paid A. B. Sirois, J. Burroughs, and A. Larue, Commissioners to settle Land Damages		1753 18 2
	£	35579 1 9

N. B.—The above amounts are included in Statement No. 1, Welland, Lachine, and Cornwall Canals; also, in Statement No. 2, Arbitrations.

No. 5.

Statement shewing the total amount expended by the Department of Public Works, during the years 1854 and 1855, as detailed in the foregoing Statements numbered 1, 2 and 3.

	Repairs and Maintenance.	Construction.	Total.
	£ s. d.	£ s. d.	£ s. d.
Statement No. 1	107306 8 9	224296 2 11	331602 11 8
" No. 2		458298 7 5	458298 7 5
" No. 3	14425 14 8		14425 14 8
£	121732 3 5	682594 10 4	804326 13 9

No. 6.

WELLAND CANAL.

Statement shewing the annual rents for Water Power leased, and the rents o other property situate on the line of the Welland Canal, with the yearly rent, the amount of rent, together with the arrears of rent payable in 1855; the amount of payments made in 1855, with remaining balance due on the 1st January, 1856.

Where situated.	Owners.	Machinery.	Yearly rent.	Amount of rent for 1855 with arrears.	Amount of payments in 1855.	Balance due on rent to 1st Jan. 1856.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Port Dalhousie.	R. Lawrie & Co.	1st run stone	15 0 0			
		2nd do	12 10 0			
		3rd do	12 10 0			
		Corn cracker	2 10 0			
		Ground rent.......	5 0 0			
		Interest on cost of..	1 16 6			
			49 6 6	49 6 6	....	49 6 6
Do .	R. & J. Lawrie.	1st run stone	15 0 0			
		3 do at £12 10s....	37 10 0			
		Ground rent.......	5 0 0			
		Interest on cost of..	2 10 0			
			60 0 0	60 0 0	....	60 0 0
Do .	Reub. Morrison.	1st saw	20 0 0			
		2 circular at £4....	8 0 0			
		Ground rent.......	5 0 0			
		Interest on cost of..	1 5 0			
			34 5 0	102 15 0	....	102 15 0
Do .	Alex. Muir	Floating dock, rent for use of water..	10 0 0			
		Ground rent.......	7 10 0			
		Interest on cost of..	1 10 0			
			19 0 0	19 0 0	....	19 0 0
Lock No. 2	J. L. Ranny ...	1 run stone........	15 0 0			
		4 do at £12 10s....	50 0 0			
			65 0 0	130 0 0	....	130 0 0
St. Catherines..	Water power Co	Surplus water from Lock No. 11 to Lock 3..........	125 0 0	250 0 0	....	250 0 0
Do ..	Calvin Phelps..	6 run stones	37 10 0	37 10 0	37 10 0	....
Lock No. 5	Richard Collier.	1 saw.............	20 0 0			
		3 circular, 1 last factory equal 2 saws, 1 lathe..........	15 0 0			
		Ground rent.......	5 0 0			
		Interest on cost of..	1 18 4			
			41 18 4	62 17 6	....	62 17 6
Lock No. 10....	Thos. Powers..	1st run stone	15 0 0			
		2nd do	12 10 0			
		Corn cracker......	2 10 0			
		Ground rent.......	5 0 0			
			35 0 0	87 10 0	....	87 10 0

STATEMENT shewing the annual rents for Water Power, &c.—(*Continued.*)

Where situated.	Owners.	Machinery.	Yearly rent.	Amount of rent for 1855 with arrears.	Amount paid Paymaster in 1855.	Balance due on rent to 1st Jan. 1856.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Lock No. 12 ...	Orson Phelps ..	1 upright saw	20 0 0			
		1 circular do.......	4 0 0			
		Ground rent.......	5 0 0			
		Int. on cost of flume.	2 0 0			
			31 0 0	77 10 0	....	77 10 0
Lock No. 15....	John Brown ...	1 run of stone with cracker	15 0 0			
		Additional power ..	20 0 0			
		Ground rent	5 0 0			
			40 0 0	95 0 0	....	95 0 0
Lock No. 20....	H. B. Hendershot.	1st saw	20 0 0			
		2nd do	15 0 0			
		1 circular	4 0 0			
		Ground rent.......	5 0 0			
		Int. on cost of flume.	1 5 0			
		As per lease ..	45 5 0			
		Additn'l upright saw	15 0 0			
			60 5 0	174 11 3	....	174 11 3
Lock No. 21....	Wm. Beatty ...	1st saw	20 0 0			
		2nd do............	15 0 0			
		3 circular at £4	12 0 0			
		Ground rent.......	5 0 0			
		Int. on cost of flume.	2 0 0			
			54 0 0	108 0 0	....	108 0 0
Lock No. 22....	Do ...	Wheel for grinding bark, &c	15 0 0			
		Int. on cost of flume.	0 18 0			
			15 18 0	31 16 0	....	31 16 0
Lock No. 23....	Wm. H. Ward.	2 lathes, 2 planing machines, and 3 circular saws	12 10 0	43 15 0	....	43 15 0
Lock No. 23....	Do .	1st saw	20 0 0			
		2nd do............	15 0 0			
		Int. on cost of flume.	1 10 0			
			36 10 0	127 15 0	....	127 15 0
Lock No. 23....	Do .	Wharf lot — Annual rent	10 0 0	25 0 0	....	25 0 0
Lock No. 23....	John Brown ...	Wharf lot — Annual rent	10 0 0	25 0 0	....	25 0 0
Lock No. 24...	Jacob Keefer ..	1st run stone.......	15 0 0			
		2nd, 3rd and 4th do at £12 10	37 10 0			
		Int. on cost of flume.	3 0 0			
			55 10 0	111 0 0	....	111 0 0

STATEMENT shewing the annual rents for Water Power, &c.—(*Continued.*)

Where situated.	Owners.	Machinery.	Yearly rent.	Amount of rent for 1855 with arrears.	Amount paid Paymaster in 1855.	Balance due on rent to 1st Jan. 1856.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Lock No. 24....	Brown & Ross.	1st run stone	15 0 0			
		2d, 3d do at £12 10s.	25 0 0			
		Ground rent.......	5 0 0			
			45 0 0			
		Cr. By 3rd run not yet in mill.......	12 10 0			
			32 10 0	97 10 0	....	97 10 0
Lock No. 24....	Park & Co.....	1st run stone	15 0 0			
		2nd and 3rd do at £12 10s.........	25 0 0			
			40 0 0	80 0 0	....	80 0 0
Lock No. 25....	John Brown ...	1st run stone with cracker	15 0 0			
		Ground rent.......	5 0 0			
			20 0 0	60 0 0	....	60 0 0
Lock No. 25....	Alex. Cristy ...	1st run stone	15 0 0			
		2nd and 3rd do at £12 10s.........	25 0 0			
			40 0 0	40 0 0	....	40 0 0
Allanburgh, W. side.	Wright & Duncan.	1st run stone	15 0 0			
		2nd and 3rd do	25 0 0			
		Carding machine...	12 10 0			
		Int. on cost of flume.	15 3 4			
		Y'ly rent as per lease	67 18 4	240 0 0	....	240 0 0
		Additional run stone from 1st Jan. 1853	12 10 0			
			80 8 4			
Allanburgh, W. side.	W. H. Merritt..	1st saw	20 0 0			
		Machinery assessed.	15 0 0			
		Int. on cost of flume.	1 15 6			
			36 15 6	73 11 0	....	73 11 0
Do do Pail Factory.	J. & A. Bowman	Water equal 1 run stone	15 0 0			
		Int. on cost of flume.	1 10 0			
			16 10 0	16 10 0	....	16 10 0
Allanburgh, W. side.	Wm. Pennock..	Shingle factory water equal 1 run stone.	15 0 0			
		Int. on cost of flume.	1 10 0			
			16 10 0	16 10 0	....	16 10 0
Do do	Tucker & Ranny Lessees.	Old Grist and Saw Mill	250 0 0	250 0 0	....	250 0 0

Statement shewing the amount of rents for Water Power, &c —(*Continued.*)

Where situated.	Owners.	Machinery.	Yearly rent.	Amount of rent for 1855 with arrears.	Amount paid Paymaster in 1855.	Balance due on rent to 1st Jan. 1856.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Port Robinson..	McFarlane & Lemon.	1 saw.............	20 0 0			
		1 circular and machine shop	10 0 0			
		Int. on cost of flume.	7 10 0			
			37 10 0	37 10 0	....	37 10 0
Port Robinson..	McFarlane & Abbay.	Dry Docks site and water...........	15 0 0			
		Int. on cost of flume.	4 16 0			
			19 16 0	19 16 0	....	19 16 0
Port Robinson..	Robt. Band & Co	1st run stones......	15 0 0			
		2nd and 3rd do at £12 10s.........	25 0 0			
		Ground rent of Mill.	5 0 0			
		Do of sloughouse and wharf...........	5 0 0			
		Int. on cost of flume.	1 10 0			
			51 10 0			
		Cr. 3rd run stone not in operation ¼ year.	3 2 6			
			48 7 6	48 7 6	....	48 7 6
Port Robinson..	Donaldson & McFarlane.	1 run stone...	15 0 0			
		Ground rent	5 0 0			
		Int. on cost of flume.	1 10 0			
			21 10 0	100 0 0	....	100 0 0
Merrittville....	Dunlop & Seely.	1st run stone	15 0 0			
		2nd and 3rd do at £12 10s.........	25 0 0			
		Other machinery ...	12 10 0			
		Int. on cost of flume.	1 10 0			
			54 0 0	108 0 0	81 0 0	27 0 0
Do South side.	Dunlop & Seely.	1 saw.............	20 0 0			
		3 circular do at £4..	12 0 0			
		Ground rent.......	5 0 0			
		Interest on flume...	2 0 0			
			39 0 0	78 0 0	... .	78 0 0
Do North side.	Dunlop & Seely.	1st saw	20 0 0			
		2nd do............	15 0 0			
		4 circular at £4	16 0 0			
		Int. on cost of flume.	2 10 0			
			53 10 0	107 0 0	....	107 0 0
Do .	E. Seely.......	Rent of of old Aqueduct for Storehouse	5 0 0	10 0 0	....	10 0 0
Do .	Moses Cook....	1st run stone	15 0 0			
		2nd and 3rd do at £12 10s.........	25 0 0			
		Ground rent.......	5 0 0			
		Int. on cost of flume.	3 0 0			
			48 0 0	96 0 0	72 0 0	24 0 0

STATEMENT shewing the amount of rents for Water Power, &c.—(*Continued.*)

Where situated.	Owners.	Machinery.	Yearly rent. £ s. d.	Amount of rent for 1855 with arrears. £ s. d.	Amount paid Paymaster in 1855. £ s. d.	Balance due on rent to 1st Jan. 1856. £ s. d.
Marshville. ...	John Graybiel .	2 run stones, 1 saw and ground rent..	40 0 0	40 0 0	....	40 0 0
Broad Creek...	L. McCallum...	1 upright saw......	20 0 0			
		2 circular do at £4..	8 0 0			
		Ground rent	5 0 0			
		Int. on cost of flume.	2 15 0			
			35 15 0	71 10 0	....	71 10 0
Port Maitland..	Imlacks & Hicks	1 run stone........	15 0 0			
		2nd do............	12 10 0			
		Ground rent	5 0 0			
		Int. on cost of flume.	2 0 0			
			34 10 0	34 10 0	....	34 10 0
Dunnville	Jacob Turner ..	1st run stone	15 0 0			
		2nd do............	12 10 0			
		1st saw	20 0 0			
		2nd do............	15 0 0			
		Ground rent	5 0 0			
			67 10 0			
		Less ⅓ until Lk. Erie level is adopted ..	22 10 0			
			45 0 0	45 0 0	22 10 0	22 10 0
Dunnville	Saml. Darling..	1st run stone.......	15 0 0			
		2nd do............	12 10 0			
		Ground rent	5 0 0			
			32 10 0			
		Less ⅓ until Lk. Erie level is adopted ..	10 16 8			
			21 13 4	65 0 0	....	65 0 0
Dunnville	L. J. Wetherby.	3 carding machines, 1 fulling mill, 1 loom and spinner, 2 turning lathes	20 0 0			
		Less ⅓ until Lk. Erie level is adopted ..	6 13 4			
			13 6 8	26 13 4	....	26 13 4
Dunnville	H. Mittloberger.	1 saw	20 0 0			
		Ground rent	5 0 0			
			25 0 0			
		Less ⅓ until Lk. Erie level is adopted ..	8 6 8			
		As per lease.......	16 13 4			
		1 circular saw since added...........	2 13 3			
			19 6 8	29 0 0	....	29 0 0

STATEMENT shewing the amount of rents for Water Power, &c.—(*Continued.*)

Where situated.	Owners.	Machinery.	Yearly rent.	Amount of rent for 1855 with arrears.	Amount paid Paymaster in 1855.	Balance due on rent to 1st Jan. 1855.
				£ s. d.	£ s. d.	£ s. d.
Dunnville	Chisholm & Minor.	1st saw	20 0 0			
		2nd do	15 0 0			
		3 circular at £4	12 0 0			
		Ground rent	5 0 0			
			52 0 0			
		Less ⅓ until Lk. Erie level is adopted	17 6 8			
			34 13 4	138 13 4	....	138 13 4
Dunnville	Hugh Boomer	1st run stone	15 0 0			
		2nd and 3rd do at £12 10s	25 0 0			
		Ground rent	5 0 0			
			45 0 0			
		Less ⅓ until Lk. Erie level is adopted	15 0 0			
			30 0 0	120 0 0	....	120 0 0
Dunnville	John Brown & W. H. Merritt	1st run stone with cracker	20 0 0			
		Ground rent	5 0 0			
		Int. on cost of flume	3 5 0			
			28 5 0	84 15 0	....	84 15 0
Haldimand	John Oldfield & Alfred Nixon.	1st saw	20 0 0			
		2nd do	15 0 0			
		1 circular	4 0 0			
		Ground rent	5 0 0			
		Yearly rent as per lease	44 0 0			
		Less ⅓ until Lk. Erie level is adopted	14 13 4			
			29 10 9			
		Additional machinery: 1 gang upright saws, 1 planing machine, 3 circular saws for lath, 1 for cutting, 1 for bolting and 1 for sawing	30 0 0			
			59 6 8	128 6 8	....	128 6 8
Haldimand	Coo Johnson	1 saw	20 0 0			
		Ground rent	5 0 0			
			25 0 0			
		Less ⅓ until Lk. Erie is adopted	8 6 8			
			16 13 4	50 0 0	....	50 0 0

Statement shewing the amount of rents for Water Power, &c.—(*Continued.*)

Where situated.	Owners.	Machinery.	Yearly rent.	Amount of rent for 1855 with arrears.	Amount paid Paymaster in 1855.	Balance due on rent to 1st Jan. 1855.
			£ s. d.	£ s. d.	£ s. d.	£ s. d.
Haldimand....	L. Brocklebank.	1 run stone........	15 0 0			
		Ground rent.......	5 0 0			
			20 0 0			
		Less ⅓ until Lk. Erie level is adopted..	6 13 4			
			13 6 8			
		2d and 3d run stone.	25 0 0			
			38 6 8	115 0 0	....	115 0 0
Haldimand....	John Beaty and Robt. Band..	1 run stone........	15 0 0			
		2nd do............	12 10 0			
		Ground rent.......	5 0 0			
		Int. on cost of flume.	4 16 0			
			37 6 0	37 6 0	....	37 6 0
Port Colborne..	John Gordon...	Woodyard.........	6 5 0	6 5 0	....	6 5 0
St. Catherines.. Lock No. 4.	Calvin Phelps..	Wharf lot.........	10 0 0	10 0 0	....	10 0 0
Locks 12, 13, 14.	C. Phelps, Wm. Fitch, & N. E. Moore......	For the surplus water passing at the weirs of Locks No. 12, 13 and 14, together with 7 acres of land, —Yearly rent....	88 10 0	....	....	....
Lock 22 to 11..	Welland Canal Loan Company.	For all the surplus water passing thro' the Welland Canal from Locks No. 22 to Lock 11 inclusive, excepting privileges heretofore granted, — Yearly rent............	90 0 0	90 0 0	....	90 0 0
			2212 2 10	4189 0 1	218 0 0	3976 10 1

Total amount of Annual Rent....................................	£2,212 2 10
Total Rent due for 1855 with arrears..............................	4,189 0 1
Total amount paid Paymaster 1855	218 10 0
Balance due on the 1st January 1856..............................	3,976 10 1

(Signed) S. D. WOODRUFF.

Welland Canal Office,
St. Catherines, 19th January, 1856.

(Signed) THOS. ADAMS,
Paymaster Clerk.

WELLAND CANAL.

Schedule of Lands on the Welland Canal sold to sundry persons, with the amount of sales and amount with interest paid thereon, to the 31st December, 1855; the amount with interest paid the Paymaster in 1854, and balances due on the 1st January, 1856.

Names of Purchasers.	No. of the Lots.	Where situated.	Quantity.	Amount of sale and interest.	Amount of sale with interest charged to 31st Dec., 1855.	Amount with interest paid to 31st Dec., 1854.	Amount with interest to pay to 31st Dec., 1855.	Balance due 1st Jany., 1856, with interest.	Remarks.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d	
Wm. B. Hendershot.	11.	Village of Port Robinson............	¼ acre....	12 10 0					
Do	A. F. G.	Park Lots, do	11½ do	83 16 10					
Do	11, 28, 29, 32, 34, 35, 36	Village of Port Robinson, East side ...	3¼ do	87 17 6					
	2, 4, 5.	do Allanburgh...............	1a. 1r. 28p. ..	38 0 0					
		Interest to 22nd July, 1854..........	In full......	21 13 3	243 17 7	243 17 7	....	....	In full.
Dilly Coleman......	21, 16 and 24.	Village of Port Robinson............	1½ acres......	50 0 0					
Do	213.	Near do	20 do	50 0 0					
		Interest to 13th October, 1854........	....	9 11 10½	109 11 10½	109 11 10½	....	....	In full.
John Coulter	H. and S.	Near Port Robinson	8 acres 1 rood	47 3 9					
Do	do	Deep Cut West Side................	15 do 2 do	58 2 6					
		Interest to 8th April, 1854...........	....	9 7 5	114 13 8	114 13 8	....	....	In full.
George Jordan	B. and J.	Park Lots near Port Robinson	17a. 1r. 25p.	127 10 9					
		Interest to 13th October, 1854........	....	13 8 11	140 19 8	140 19 8	....	....	In full.
Patrick Finlay	22, 23 and 24.	Allanburgh hotel and barns..........	2½ acres	204 0 0					
Do	19.	Village of Allanburgh	1½ do	8 15 0					
		Interest to 30th May, 1854	....	22 0 7	234 15 7	234 15 7	....	....	In full.
John Brown	23.	Village of Port Robinson............	⅕ acre	50 0 0					
Do	3 and 4.	Near Thorold......................	18a. and 21p..	153 10 8					
		Interest to 22nd October, 1851.......	....	42 14 7	246 5 3	246 5 3	....	....	In full.
William Quick....	2 and 4.	Near Thorold	21a. 1r. 20p.	125 16 8					
		Interest to 12th April, 1854..........	....	11 5 9	137 2 5	137 2 5	....	....	In full.

Schedule of Lands on the Welland Canal sold to sundry persons, with amount of sales and interest thereon,—*Continued.*

Names of Purchasers.	No. of the Lots.	Where situated.	Quantity.	Amount of sale and interest.	Amount of sale with interest charged to 31st Dec., 1855.	Amount with interest paid to 31st Dec., 1854.	Amount with interest to pay to 31st Dec., 1855.	Balance due 1st Jany., 1856, with interest.	Remarks.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
James R. Benson ...	On behalf of	Hydraulic Company—							
		Lots below Thorold..................	211a. 1r. 17p..	2113 11 3					
		Interest to the 31st December, 1855...	....	336 9 5					
					2450 0 8	502 14 3	....	1947 6 5	
Alexander Lattimore	Parts 34, 35 and 36 South	3rd Concession Wainfleet............	488 acres....	244 0 0					
		Interest to 31st December, 1855	....	21 4 5					
					265 4 5	150 0 0	30 0 0	85 4 5	
Municipality of the County of Welland	Lands in	Wainfleet	10796 acres.						
	Do	Humberstone	2048 do						
		Part of Lot No. 27..................	68 do ..	3228 0 0					
		Interest to 31st December, 1855	....	445 11 6					
					3673 11 6	827 7 10	....	2846 3 8	
E. Henderson......	North parts of Lots 26, 27 and 28.....	3rd Concession of Wainfleet..........	416 acres....	208 0 0					
		Interest to 31st December, 1855......	....	24 7 5					
					232 7 5	62 8 0	....	169 19 5	
Ephraim Hopkins ..	Part of Lot	No. 50 in the Township of Thorold....	3r. 2p.	10 6 8	10 6 3	....	10 6 8		
Sullivan and others .	Sale of old	plank £8 11s. 1d. over charge on freight of oil. 95s. 7167 lbs. scrap iron, £17 18s. 1d....................	....	31 4 7	31 4 7	31 4 7			
John Hanly........	On account of	sale of John McLean's house..........	Port Colborne	25 0 0	25 0 0	....	25 0 0		
John Sullivan	3998 lbs. old	scrap iron.........................	....	7 9 11	7 9 11	7 9 11			
				£	7922 10 9½	2961 0 8½	72 16 2	5048 13 11	

(Signed,) S. D. WOODRUFF.

Thos. Adams,
Paymaster and Clerk.

Welland Canal Office,
St. Catherines, 19th January, 1855.

No. 6—(*Continued.*)

WILLIAMSBURG CANALS.

Names of Lessees.	Description of Machinery.	Run of Stones.	Amount of Annual Rent.		
			£	s.	d.
Benjamin Chaffey	Grist and Flouring	6	61	0	0
William Elliott	Grist, flouring and carding	3	85	0	0
John Molson, Jr	Grist and flouring	4	85	0	0
William McLaughlin	Wharf	..	8	0	0
John Walsh	Wharf	...	11	0	0
K. McPherson	Wharf	..	3	0	0

CORNWALL CANAL.

Andrew Elliot	Grist and flouring	8	60	0	0
John Harver	Grist and flouring	4	80	0	0
A. E. Cadwell	Saw, &c	..	80	0	0
John Bell	Water pipe to Brewry	..	2	10	0

BEAUHARNOIS CANAL.

William Miller	Paper Manufactory	..	70	0	0

LACHINE CANAL.

Basin No. 2 at Montreal.

Names of Lessees.	Nos. of Lots.	Description of Mills.	Kinds of Machinery.	Rent.			Remarks.
				£	s.	d.	
Frothingham & Workman	1	Store		98	0	0	
Frothingham & Workman	E. ½ of 2	Vacant		66	0	0	
W. B. Bartley & Co	W. ½ of 2	Vacant		66	0	0	
W. B. Bartley & Co	8 and 4	Finishing Shop and Saw Factory.	10 Lathes, 4 Planing Machines, 2 Drilling do	216	0	0	
W. B. Bartley & Co	5	Iron Foundry	1 large Fanner, 1 large Furnace	107	10	0	
W. B. Bartley & Co	6	Blacksmith Shop	1 Fanner, 1 Trip Hammer, 1 Pinching Machine	107	10	0	
W. B. Bartley & Co	7	Steam Boiler Shop	3 Drilling Machines, 1 pair Shears, 1 Pinching Machine, 1 Fire Engine	107	10	0	
James Hervey	8 and ½ of 9	Store House	2 Grain Elevators.	135	0	0	
Thomas Peck	½ of 9 & 10	Nail and Spike Factory.	6 large Nail Machines, 9 small do, 1 Slitting Machine, 2 Spike Machines	135	0	0	
James McDougal	11	Grist Mill	4 run of Stones, 1 Smut Mill	107	10	0	

No. 6.—(*Continued.*)

LACHINE CANAL.—(*Continued.*)

Names of Lessees.	Nos. of Lots.	Description of Mills.	Kinds of Machinery.	Rent.	Remarks.
				£ s. d.	
Ira Gould.............	12, 13 & 14	Grist Mill and Store.	12 run of Stones, 2 Smut Mills, 1 Ship Elevator, 5 setts do in store, 1 Fire Engine..	324 0 0	
J. D. Bigelow & Nile ...	15	Nail and Spike Factory.	30 Nail Machines, 2 Spike do	107 10 0	
Holland & Dunn	16	Nail and Spike Factory.	34 Nail Machines, 2 Spike do.....	107 10 0	
Wm. Lyman & Co......	17	Oil and Drug Mill	1 sett of Rollers, 1 pair Chasers, 2 Power Presses, 2 Power Pumps, 2 setts of Strainers, 7 pair of Drug Chasers, 3 run of Stones, 2 Crackers, 1 Dye Wood-cutter, 1 Circular Saw, 1 Paint Mixer, 1 Putty Mill, 2 Screens, 1 Triturator	107 10 0	
Grant, Hall & Co.......	18 and 19	Saw and Planing Mill.	4 Circular Saws, 2 Planing Machines, 1 Cylinder Saw, 1 Drag Saw, 1 Burr Wheel, 1 Fire Engine........	215 0 0	
Geo. and Wm. Tate.....	....	Dry Dock and Saw Mill. Steam Engine and Boiler Shop.	1 Upright Saw, 1 large Circular do, 1 small do do, 1 Plaining Machine, 8 Turning Lathes for Iron, 2 do do for Wood, 2 Planing Machines, 2 Drilling do, 1 Pinching and Shaping Machine, 1 Shaping Machine.......	250 0 0	
Wm. Tate.............	....	Old Canal Locks .	Grav. Docks.....	110 0 0	

St. Gabriel Lock.

The entire Hydraulic Property and Surplus Water at this Lock is leased to John Young and Ira Gould, at an annual rent of.................... and sub let as follows, viz:—				420 0 0	
A. Cantin	1	Saw Mill.........	1 Upright Saw, 1 large Circular Saw, 1 small do do, 3 Planing Machines, 1 Moulding Striker	....	

No. 6.—(*Continued.*)

LACHINE CANAL.—(*Continued.*)

Names of Lessees.	Nos. of Lots.	Description of Mills.	Kinds of Machinery.	Rent.	Remarks.
				£ s. d.	
Redmond & Co....	2	Foundry and Machine Shop.	4 Turning Lathes for Iron, 1 Planing Machine, 1 Drilling do., 1 Bolt Screwing Machine, 1 large Fanner, 2 large Furnaces......	....	
T. W. Harris	3	Cotton Factory and Wadding Mill.	1 Picker, 2 Lappers, 18 Carding Machines, 1 Drawing Frame, 1 Speeder, 11 Spinning Frames, 1 Spooler, 1 Warper, 1 Dressing Machine, 40 Looms, 1 Calinder, 2 Sizing Machines		
		Repairing Shop..	3 Engine Lathes, 1 Engine Cutting Gear	....	
Robert Scott...........	4	Edge Tool Works.	5 Trip Hammers, 1 Forge, 5 Polishing Frames, 3 Augur Lathes, 1 Friction Wheel, 5 Grind Stones, 2 Jammers, 2 pairs of Shears, 1 Oval Lathe, 1 Circular Saw, 1 Wood Polishing Machine, 1 Lip Strapping do ..	....	
Montreal Rubber Co....	5	India Rubber Factory, with machinery to 60 horsepower.	1 Cutting Engine, 6 Grinding Engines, 2 large Calinders	....	
J. W. Weaver..........	6	Woollen Manufactory.	1 Spinning Machine, 3 Carding Machines, 5 Power Looms, 1 Shearing and Trapping Machine, 1 Picking do, 1 Fulling Mill	....	
A. W. Ogilvee & Co.....	7	Grist Mill.......	5 run of Stones, 1 Smut Mill.....	....	
Wm. Burry & Co.......	8	Foundry and Machine Shop.	8 Turning Lathes for Iron, 2 Drilling Machines, 1 Iron Planer, 1 Bolt & Screwing Machine, 2 Fanners, 1 large Furnace........	....	

No. 6.—(*Continued.*)

LACHINE CANAL.—(*Continued.*)

Names of Lessees.	Nos. of Lots.	Description of Mill.	Kind of Machinery.	Rent.	Remarks.
				£ s. d.	
J. and D. Smith........	9	Thrashing Machine Factory.	2 Oval Lathes, 2 Turning do for Iron, 2 do do for Wood, 1 Chuck Lathe, 1 Drilling Machine, 1 Pinching do, 1 Planing do, 3 Circular Saws, 1 Tenoning Machine, 1 Screw Cutting do, 1 Fanner........	....	
Ira Gould.............	11	Barrel Factory...	1 Chiming and Crosing Machine	....	
J. & F. McGouvran.....	12	Saw Mill........	1 large Circular Saw, 1 small do do, 1 Burr Wheel	....	
J. A. Converse.........	13	Cordage Manufacfactory and Plaster Mill.	1 large Laying Machine, 4 small do, 50 Spinning do, 1 run Stones, 1 Cracker	....	
Thomas Shearer........	14	Door and Sash Factory.	2 large Planing and Moulding Machines, 2 small do do, 1 Box Machine, 12 Circular Saws, 1 Patent Saw-mill Saw, 1 Scroll Saw, 2 Sash Machines, 2 Tenoning do, 1 Mortising do, 1 Turning Lathe, 3 Groovers, 1 Blind Boring Machine, 2 Blind Stat Turning do, 1 Door Tenoning do	....	
Wm. Allen............	15	Chair and Bedstead Factory.	1 Upright Saw, 1 1 Goug do, 3 Circular do, 1 Planing Machine, 3 Lathes, 4 Boring Machines......	....	
John Ostell............	16	Door and Sash Factory.	10 Circular Saws, 1 Upright do, 3 Grooving Machines, 8 Tenoning do, 1 Mortising do, 3 Moulding do, 2 Grind Stones, 1 Side Pointer, 2 Boring Machines...	....	
John Ostell............	17	Saw Mill........	2 large Circular Saws, 1 Burr Wheel	....	

No. 6.—(*Continued,*)

LACHINE CANAL.—(*Continued.*)

Cote St. Paul Lock.

Names of Lessees.	Nos. of Lots.	Description of Mills.	Kinds of Machinery.	Rent.	Remarks.
The entire Hydraulic Property and Surplus Water at this Lock is rented to Wm. Parkin at an annual rent of................................ and sub-let as follows, viz.:—				£ s. d. 401 0 0	See sketch for position of Lots.
Wm. Parkyn...........	1	Grist Mill	4 run Stones, 1 Smut Mill.....	....	
J. J. Higgins & Co......	2	Axe Factory.....	2 Trip Hammers, 1 Fanner, 5 Grindstones, 4 Polishing Machines ..	....	
Wm. Parkyn	3	Shovel Factory ..	1 Shaping Press, 1 Strap do, 1 Cutting do, 1 Champering Machine, 1 Pinching do, 1 Boring do, 2 Polishing do, 1 Rolling Mill, 1 Grindstone...	....	
S. and J. Dunn.........	4	Nail and Spike Factory.	14 Nail Machines, 2 Slitting do, 1 pair Shears, 1 Lathe, 1 Fanner, 1 Grindstone...	....	
John Ostell............	....	Island above Wellington Bridge..	Lumber Yard....	20 0 0	
Augustus Labbé	....	Island above St. Gabriel Lock ..	Ship Yard	25 0 0	
N. Doré...............	....	Woodyard at	Lachine	8 0 0	
			Total..£	3241 10 0	

(Signed,) JOHN G. SIPPELL,
Sup. Eng.

Lachine Canal Office,
Montreal, 18th February, 1856.

No. 6.—(*Continued.*)

RIVER OTTAWA.

HYDRAULIC LOTS AT OTTAWA CITY.

	Names of Purchasers.	Nature of Improvement (if any.)	Amount sold for.		
	VICTORIA ISLAND.		£	s.	d.
H.	Philip Thompson	1 Saw mill; 27 upright, 1 circular saw	165	0	0
I.		Grist mill—8 run of stones	100	0	0
J.		Sash and blind factory	65	0	0
K.	James Petrie	Now erecting a machine shop	50	0	0
L.	Robert Bell	About to commence building a mill	55	0	0
Q.	Young, Wynn & Co	Saw mill—21 upright saws	175	0	0
R.		1 Circular saw	105	0	0
S.	N. S. Blusdell & Co	Foundry machine shop	60	0	0
T.	Young, Wynn & Co	Stone building	175	0	0
U.	Harris & Bronson	No improvement yet.	50	1	0
V.			50	1	0
W.			50	1	0
X.			50	1	0
Y.	Harris & Bronson	76 upright saws, 4 circular saws	50	1	0
Z.		Agents made for 70 more upright saws	88	0	0

In addition, these lots pay a yearly rent of £5 for the quantity of water equal to drive one-run of millstones, or other machinery equal thereto, for such portion as they may use.

No. 6.—RIVER OTTAWA—(*Continued.*)

BUILDING LOTS AT OTTAWA CITY.

	Names of Purchasers.	Nature of improvement (if any.)	Amount sold for.		
	VICTORIA ISLAND.—(*Continued.*)		£	s.	d.
1	Robert Skead	Frame building, stables and shed	16	5	0
2			19	5	0
3	S. H. Waggoner	Stone house, stables and shed	11	5	0
4	N. S. Blusdell & Co	Frame building and shed	19	5	0
5	Young, Wynn & Co	A large frame building	10	15	0
6	Harris & Bronson	Stone building and barn	10	1	0
7	John McDonald	Stone house	15	10	0
8	Mrs. Johnson	Stone house	10	5	0
9	Harris & Bronson		10	5	0
10	George Wheeler	No improvement	10	5	0
11	Young, Wynn & Co	No improvement	10	5	0
12	Harris & Bronson	No improvement	31	0	0
13	Young, Wynn & Co	No improvement as yet, but used as piling ground for lumber sawed at their mills. On these lots, and those of Harris & Bronson, there is now about 5,000,000 feet, and this, then, will be over 15,000,000 feet.	11	0	0
14			12	0	0
15			13	10	0
16			16	10	0
17			17	10	0
18			18	10	0
19			18	10	0
20			19	0	0
21	Harris & Bronson	Range of stone buildings	13	0	0
22			10	5	0

No. 6.—RIVER OTTAWA.—(*Continued.*)

BUILDING LOTS.—(*Continued.*)

	Names of Purchasers.	Nature of improvement (if any.)	Amount sold for.		
	VICTORIA ISLAND.—(*Continued.*)		£	s.	d.
23	Harris & Bronson	No improvement	10	5	0
24			10	5	0
25			16	5	0
26			33	0	0
27			11	5	0
28			10	5	0
29			10	5	0
30			10	5	0
31			10	10	0
32			10	5	0
33			10	5	0
34			11	15	0
	W. S. Blusdell	Triangular lot, no number	11	0	0
	CHAUDIERE ISLAND.				
1	William Mason	Dwelling house and carpenters' shop			
2					
3	Lyman Parkins	No improvement			
4	Philip Thompson	No improvement			
5	James Petrie	Building frame house			
6	A. H. Baldwin	" " "			
7	Dr. Church	No improvement			
12	Dr. Church		21	0	0
13	E. H. Baldwin		26	0	0
14	Jas. Jno. Petrie		32	0	0
15	Phillip Thompson		89	0	0
16	Lyman Parkins		46	0	0
18	Wm. Mason		89	0	0
	ALBERT ISLAND.				
1	Lyman Parkins	No improvement	85	0	0
2			86	0	0
3			40	0	0
4			49	0	0
			46	0	0

CHATS RAPIDS.

Names of Lessees.	Description of Machinery.	Run of Stone.	Amount of Rent.		
			£	s.	d.
Wm McLaughlin	Saw	....	20	0	0
John Egan	Saw	....	20	0	0
John Egan	Saw	....	20	0	0
John Egan	Saw	....	20	0	0
Peter Aylen	Saw	....	20	0	0

CHAMBLY CANAL.

J. O. Pierce	Wharf	Current Rent	£28	5	0

No. 7.

STATEMENT of Balances of Appropriations available 1st January, 1856.

	£	s.	d.		£	s.	d.
Quebec Custom House	24931	1	8	Harbours and Light Houses	1724	8	2
Kingston Post Office	5500	0	0	Removal to Toronto, 1849	122	19	5
Light Houses below Quebec	4336	7	3	Removal to Quebec	4297	17	0
Toronto Post Office	1342	9	7	Lake St. Peter	2592	12	1
Landing Piers below Quebec	8816	11	2	Prescott to Ottawa Road	17	6	6
Welland Canal	48368	6	3	Bridges, Montreal and Quebec	5515	15	2
Montreal Post Office	266	19	1	Brantford Road	7599	6	0
Chats Canal	18851	4	11	Chambly Canal Claims	80	2	2
Harbours, &c., Lake Huron	13882	13	2	Arthabaska Road	13	16	5
Montreal Gaol	49	9	6	Chaudière Bridge	50	12	6
Improvement St. Lawrence	48	16	0	Chatham Bridge	18	19	3
Dredging Lake St. Clair	5000	0	0	Dover Road (Mountain)	851	3	6
Junction Canal	11098	19	8	Gaspé Road	14	10	4
St. Maurice Works	155	19	9	Cornwall Canal Debentures	294	18	2
Survey Champlain Canal	970	3	4	Grosse Isle Wharf	3	18	7
Arbitrator	5289	1	3	Rondeau Harbour	314	14	9
Surveys	3214	4	6	Bobcaygean Dam	264	0	0
Narrows Bridge	600	0	0	Waterloo and Sherbrooke Road	26	11	3
Ottawa Works	2452	9	6	Cobourg Harbour	500	0	0
Port Hope Harbour	10000	0	0	Hamilton and Dover Road	466	4	7
Montreal Custom House Repairs	762	15	0	Champlain Bridge	990	15	6
Hamilton Custom House	4984	17	3	Chats Portage Road	1200	12	10
River Ouelle Pier	3000	0	0	River Trent Bridge	107	14	4
River Richelieu	442	16	1	Dover Light House	286	7	6
Port Stanley Harbour	1162	18	6	Kempt Road	191	15	6
Light Houses	42887	12	8	St. Lawrence and New Brunswick Road	21274	15	7
St. Anns Rapids	5070	5	11				
Burlington Bay Canal	2851	12	0	St. Lewrence Canals	35778	9	1
Quebec Post Office	14990	12	6	Towage on St. Lawrence	291	17	9
Chambly Canal	500	0	0	Homilton Post Office	572	7	5
Presquile Pier and Leading Light	369	10	0	Scugog Lock	6503	10	0

WELLAND CANAL.

Statement shewing, first, the vessels whose fines and damages were unpaid on the 1st January, 1855; and, secondly, the vessels and other property passing through the Canal, with the amounts levied thereon, in 1855, and paid to the Paymaster, and balance due on the first of January, 1856.

Year.	Date.	Description.	Name of Vessel, &c.	Amount of Fine levied.	Amount of Damages levied.	Amount Paid Paymaster, 1855.	Balance due 1st January, 1856.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.
1850	December 3.	Schooner..	Joseph Ward	....	1 5 0	....	1 5 0
1851..	May 21	Propeller .	James Wood.........	....	10 0 0	....	10 0 0
1852..	August 18.	Schooner..	Holton.............	....	2 15 0	....	2 15 0
“ ..	September 7.	do ..	Chesapeak..........	....	3 0 0	....	3 0 0
“ ..	November 8.	do ..	Sultan	....	1 10 0	1 10 0	
1853..	September 14.	do ..	J. E. Hunt	....	2 10 0	....	2 10 0
“ ..	October 31.	Propeller..	Dayton	....	2 10 0	2 10 0	
“ ..	December 1.	Raft......	McDonalds	15 0 0	14 15 4	....	29 15 4
1854..	May 14.	Steamer...	Reindeer	....	350 0 0	....	350 0 0
“ ..	“ 14.	do ...	Belvedere..........	....	1 5 0	....	1 5 0
“ ..	June 27.	do ...	Oneida Chief.......	....	2 10 0	2 10 0	
“ ..	July 14.	Propeller .	Wisconsin	....	7 7 6	7 7 6	
“ ..	September 11.	Schooner..	John Hessmau	....	1 5 0	1 5 0	
“ ..	“ 15.	do ..	Water Witch	....	1 5 0	1 5 0	
“ ..	“ 16.	do ..	Augustus Ford......	....	50 0 0	....	50 0 0
“ ..	“ 21.	do ..	Ontario	5 0 0	....	5 0 0	
“ ..	October 9	do ..	Vincennes..........	1 5 0	....	....	1 5 0
“ ..	“ 27.	do ..	Maryland	....	34 10 0	....	34 10 0
“ ..	November 27.	do ..	Mohegan	....	1 5 0	1 5 0	
“ ..	“ 27.	Propeller..	Michigan	....	150 0 0	150 0 0	
“ ..	“ 28.	Schooner ..	Levina	....	5 0 0	5 0 0	
1855..	April 17.	Scow	Gipsey.............	....	7 10 0	7 10 0	
“ ..	“ 26.	....	Late R. Fowley.....	3 15 0	....	3 15 0	
“ ..	“ 27.	Schooner..	Minnesota	....	5 0 0	5 0 0	
“ ..	“ 30.	do ..	Mohegan	....	5 0 0	5 0 0	
“ ..	May 14.	do ..	J. E. Shaw	....	1 5 0	1 5 0	
“ ..	“ 14.	Propeller..	Prairie State......	....	15 0 0	15 0 0	
“ ..	“ 15.	Schooner..	Plymouth Rock	....	2 10 0	2 10 0	
“ ..	“ 23.	Brig......	Liverpool	....	1 0 0	1 0 0	
“ ..	“ 23.	do	Henry Wheaton......	....	2 10 0	2 10 0	
“ ..	“ 25.	Propeller..	Louisville	2 10 0	....	2 10 0	
“ ..	June 1.	Schooner..	St. George.........	....	10 0 0	10 0 0	
“ ..	“ 6.	Propeller..	Young America.	....	4 5 0	....	4 5 0
“ ..	“ 7.	Barge.....	Three Bells........	1 5 0	....	1 5 0	
“ ..	“ 10.	Brig......	Sir Charles Napier ..	....	2 0 0	2 0 0	
“ ..	“ 10.	do	F. E. Clarke	....	2 5 0	2 5 0	
“ ..	“ 12.	Schooner..	North Stars	1 0 0	....	1 0 0	
“ ..	“ 14.	do ..	J. P. Mack.........	....	2 10 0	2 10 0	
“ ..	“ 19.	do ..	Junius	....	2 10 0	2 10 0	
“ ..	“ 20.	Propeller .	Vermont	....	15 0 0	15 0 0	
“ ..	“ 21.	Schooner..	Manhattan	2 10 0	....	....	2 10 0
“ ..	“ 21.	do ..	Lyrus	....	2 5 0	2 5 0	
“ ..	“ 22.	do ..	Christiana.........	1 0 0	....	1 0 0	
“ ..	July 3.	Brig......	Cortland	1 5 0	....	1 5 0	
“ ..	“ 7.	Steamer...	Ranger	....	2 10 0	2 10 0	
“ ..	“ 14.	Scow	Abignil	5 0 0	....	5 0 0	
“ ..	“ 17.	Schooner..	Marquette..........	....	5 0 0	5 0 0	
“ ..	“ 23.	do ..	Lafayette Cook.....	....	5 0 0	5 0 0	
“ ..	“ 23.	do ..	Three Bells........	....	3 5 0	3 5 0	
“ ..	“ 28.	do ..	Ayr	....	1 10 0	1 10 0	
“ ..	“ 29.	do ..	Sinbad.............	....	2 0 0	2 0 0	
“ ..	August 7.	Steamer ..	George Moffatt.....	5 0 0	....	5 0 0	
“ ..	“ 23.	do ..	Louisville	....	1 10 0	1 10 0	
“ ..	September 7.	....	Piling Machine.....	1 0 0	....	1 0 0	

WELLAND CANAL.

Statement shewing the vessels whose fines and damages were unpaid on the 1st January, 1855, &c.—(*Continued.*)

Year.	Date.	Description.	Name of Vessel, &c.	Amount of Fine levied.	Amount of Damages levied.	Amount Paid Paymaster 1855.	Balance due 1st January, 1856.
				£ s. d.	£ s. d.	£ s. d.	£ s. d.
1855..	September 18	Steamer ..	St. George	....	6 5 0	....	6 5 0
" ..	" 19.	Schooner..	Utica..............	1 5 0	....	1 5 0	
" ..	" 22.	do ..	splay	....	3 5 0	3 5 0	
" ..	" 24.	Propeller .	City of Hamilton....	....	11 0 0	....	11 0 0
" ..	" 28.	Schooner..	Puritan	....	5 0 0	5 0 0	
" ..	October 3.	do ..	Cincinnati..........	....	10 0 0	10 0 0	
" ..	" 8	do ..	Emblem Marshall....	....	6 10 0	6 10 0	6 10 0
" ..	" 10.	do ..	Neuches............	....	2 10 0	2 10 0	2 10 0
" ..	" 12	do ..	Sovereign of Lakes ..	5 0 0	5 0 0	5 0 0	
" ..	" 15.	Propeller .	Kentucky	....	18 15 0	18 15 0	
" ..	" 15.	do .	Michigan...........	....	5 0 0	5 0 0	
" ..	" 16.	Schooner..	Danube	....	2 5 0	2 5 0	
" ..	" 18.	do ..	Planet	....	2 10 0	2 10 0	
" ..	" 19.	do ..	Cincinnati..........	....	3 15 0	3 15 0	
" ..	" 24.	do ..	Ayr	....	3 0 0	3 0 0	
" ..	November 2.	do ..	Aurora	....	5 5 0	5 5 0	
" ..	" 9.	do ..	Augustus Ford......	....	0 10 0	0 10 0	
" ..	" 12.	do ..	Wm. Penn..........	....	3 15 0	....	3 15 0
" ..	" 16.	do ..	Arabian............	....	2 0 0	....	2 0 0
" ..	" 19.	do ..	Ayr	....	2 0 0	....	2 0 0
" ..	" 22.	Steamer ..	Huron	....	1 5 0	....	1 5 0
" ..	" 27.	Scow	Brown's............	....	2 10 0	....	2 10 0
" ..	" 27.	Schooner..	Niles	....	1 5 0	1 5 0	
" ..	" 27.	Scow	Minerva Cook	5 0 0	....	5 0 0	
" ..	" 27.	do	Proctor	....	1 5 0	1 5 0	
				£56 15 0	848 7 10	378 12 6	526 10 4

S. D. WOODRUFF.

Thomas Adams,
Paymaster and Clerk.

Welland Canal Office,
St. Catherines, 31st December, 1855.

No. 9.

ARTICLES OF AGREEMENT BETWEEN FRANCIS BABY AND THE COMMISSIONERS OF PUBLIC WORKS FOR A LINE OF STEAM TUG BOATS.

On the twenty-fourth day of August, in the year of our Lord, one thousand eight hundred and fifty-five. Before us the undersigned Notaries Public duly admitted and sworn in and for that part of the Province of Canada heretofore called Lower Canada, residing in the City of Quebec, personally came and appeared François Baby, Esquire, Gentleman, residing in the City of Quebec, of the first part, and Her Majesty Queen Victoria represented herein by the Honorable François Lemieux and the Honorable Hamilton Hartly Killaly, Commissoners of Public Works, for the Province of Canada, residing in the City of Quebec, of the second part; which said parties in the presence of us, the said Notaries, have made the following stipulations, covenants and agreements, that is to say:

The said François Baby did and doth hereby promise and engage and bind and oblige himself, his heirs and assigns to and in favour of Her said Majesty, Her Heirs and Successors, to establish and maintain during the space and time of *ten years*, which will be computed from the twenty-sixth day of February now last past, a line of steam tug boats to run between Quebec and Anticosti for the purpose of towing and aiding vessels coming up or going down the River St Lawrence, and for the purpose of relieving wrecks, when ordered and directed so to do, by the Department of Public Works, and for all other purposes, which the Commissioners of Public Works may see fit.

And in order to establish and maintain the said line of steam tug boats between Quebec and the Island of Anticosti as aforesaid, the said François Baby did and doth hereby promise and engage and bind and oblige himself, his heirs and assigns to build and construct or cause to be built and constructed within a reasonable time, at his own cost and expenses, in a good, strong, substantial, workmanlike manner, two first-class iron screw steamers, of not less than three hundred horse power, each.

And the said François Baby did and doth hereby promise, bind and oblige himself to find and provide the whole of the materials required and necessary for the building of the said two steam tug boats and also the whole of the steam engines required for the said boats and to complete and finish the said two steam tug boats ready for use, in every respect, to the entire satisfaction of the said Commissioners of Public Works, on or before the first day of the month of September, in the year one thousand eight hundred and fifty-six.

And so soon as the said two steam tug boats will be built and constructed, the said François Baby did and doth hereby promise and bind and oblige himself, his heirs and assigns to keep and maintain during the term aforesaid, a line of steam tug boats which shall run between Quebec and the Island of Anticosti as aforesaid, to aid vessels and relieve wrecks, when required, so that there may be an uninterrupted service for towage, and the relieving of wrecks during the time aforesaid, and the said François Baby did and doth hereby promise and bind and oblige himself, his heirs and assigns to obey and follow during the time aforesaid, all the orders and directions he may receive, from time to time, from the Commissioners of Public Works, or from the proper officers of the said Department of Public Works, and to conform himself to all regulations from time to time established by the said Department.

And the said François Baby did and doth hereby bind and oblige himself to charge and require for the towage of vessels, Quebec being the upper terminus, the following prices, to wit:

One shilling and two-pence currency per foot for each mile from Pillar light and above the same; one shilling currency per foot, for each mile from Kamouraska and below Pillar light; eleven pence currency per foot, for each mile from Brandy Pots, and below Kamouraska; and for the remainder of the distance, namely, from the Brandy Pots to Anticosti, ten pence currency per foot for each mile, the distance to be computed by the following divisions, namely, a vessel taken up between Brandy Pots and Bic, to pay from Bic, between Bic and Metis, to pay from Metis, between Metis and Cap Chat, from Cap Chat, and between Cap Chat, and Anticosti, from Anticosti; and the same rate of towage, in the same proportion downwards from Quebec, all fractions of a foot, to be charged as a foot and the deepest draft to be taken.

And it is expressly covenanted and agreed by and between the party of the first part and Her said Majesty represented by the said Commissioners as aforesaid, that the said François Baby shall be entitled to be paid for the aiding of vessels, relieving wrecks, and detention for the same, *a salvage* according to special agreement made between him and the proprietors or masters of the vessels, if such agreement is entered into between them; and if not then and in that case the "*quantum meruit*" and the proper allowance may be fixed by arbitrators, should such mode be agreed on by them; but in the event of such arbitrators not agreeing as to the amount, or on their failing to render their award within the time previously fixed on by the parties in either of such cases, the just allowance is to be finally decided by the Commissioners of Public works.

The present contract is thus made for and in consideration of a Bonus of the sum of eleven thousand and three hundred pounds currency, for each and every year of the duration of the present contract, for the said two tug boats; which said sum of money, Her said Majesty represented by the said Commissioners of Public Works did and doth hereby agree and promise, to pay to the said François Baby or order as follows, in two equal instalments of five thousand six hundred and fifty pounds currency each to be made: the first, in the middle of the season, and the second payment at the close of the navigation of each and every year of the duration of the present contract.

And moreover the said François Baby did and doth hereby promise and bind and engage himself to provide and put on the line one or more vessels, should the Government call upon him to do so, on being proportionally paid for his services.

And in order to aid the party of the first part in the building and fitting up of the said steamers, the said Commissioners of Public Works, especially authorised to that effect by an order in Council, bearing date the twenty-sixth day of February, now last past, and approved by His Excellency the Governor General in Council, on the following day, did and do hereby promise and bind and oblige themselves and their successors in office to pay and advance to the builders of the said steamers for and on account of the said François Baby, the sum of nineteen thousand pounds currency, in such proportions and in such manner as may be satisfactory to them the said builders, and to the Government of this Province, it being distinctly understood, however, that no such advance is to be made except on the certificate of Lloyd's surveyor or such other person as may be acceptable to the Government; that the said boats are being built of the class hereinabove mentioned: and for securing the payment of the said advance of nineteen thousand pounds currency, the said François Baby did and doth hereby promise and bind and oblige himself, to give and grant unto Her said Majesty a full mortgage upon the said two new steamers as well as upon his present steamers, the "Advance" and the "Admiral," and to grant and sign to that effect all deeds required and necessary, and moreover the said François Baby shall be bound, as he doth hereby bind himself, to insure the said new steamers to the said full value, and the said steamers the "Advance" and the "Admiral" to the amount of a sum not being less than twelve thousand pounds currency; and to renew the said insurance every year, at his own cost and expense till the due fulfilment of the said contract, and to transfer and assign unto Her said Majesty the amount of the insurance of each of the said steamers andto put into the hands of the said Commissioners of Public Works, the Policy or

Policies of the said insurance and the receipt or receipts of the renewal of the same.

And the said François Baby did and doth hereby promise and bind and oblige himself, his heirs and assigns to repay unto Her said Majesty, her heirs and successors hereby accepting the said Commissioners of Public Works, the said sum of nineteen thousand pounds currency in four annual payments of four thousand seven hundred and fifty pounds currency each, out of the subsidies of the second, third, fourth and fifth years of the present contract: together with the interest at six per cent., payable yearly, and to be computed from the day the said advance will be made, until full and perfect payment.

And it is further covenanted and agreed by and between the said parties, that the said Commissioners of Public Works, shall be bound as they do hereby bind themselves, to advance unto the said François Baby, the bonus of the first year, to aid him, also, in the procuring of the vessels, so soon as the said steamers shall be ready to enter upon their service.

And pending the building of the said new steamers the said François Baby doth hereby promise and bind and oblige himself to maintain the line he is now maintaining, and to fulfil the services required with his present steamers, the "Admiral", and the "Advance," till the said new steamers may be ready to fulfil the services required under and by virtue of the present contract.

And the said parties acting as aforesaid did and do hereby agree to annul and cancel the contract made and entered into between the said François Baby and Her said Majesty, represented by the Honorable Jean Chabot, then Chief Commissioner of Public Works and the said Honorable Hamilton H. Killaly, Assistant Commissioner of Public Works, and passed before Joseph Petitclerc and his colleague Notaries, at Quebec, on the fourth day of September now last past; willing and agreeing with the said parties that the said contract be null and void, to all intent and purposes, from the twenty-sixth day of February now last past, in the same way as if the same had never been made.

And for the due execution hereof, the parties have made election of their domiciles, to wit, the said contractor as his actual residence, and the said Honorable Commissioners of Public Works, at the office of the Department of Public Works at Quebec, for thus, &c.,

Thus done, passed and sealed at Quebec aforesaid, in the office of the Department of Public Works, on the day, month and year first above written, under the number eight thousand seven hundred and fifty-nine, and the said parties together with Thomas A. Begly, Esquire, Secretary of the Department of Public Works, also present, have to these presents, first duly read, set and subscribed their names and signatures, together with us the said Notaries in faith and testimony of the premises.

Signed on the original remaining of record in the office of Jh. Petitclerc, one of the undersigned Notaries.

"F. BABY,
"F. LEMIEUX,
Chief Com. of Public Works.
"HAMILTON H. KILLALY,
Asst. Com. of Public Works.
"THOMAS A. BEGLY,
Secretary of Public Works.
"S. GAMACHE,
Notary Public.
"JH. PETITCLERC,
Notary Public."

True copy.

(Signed,) Jh. Petitclerc, N. P.

No. 10.

ARTICLES OF AGREEMENT BETWEEN MESSRS CALVIN & BRECK AND THE COMMISSIONERS OF PUBLIC WORKS.

This Agreement made in duplicate this seventeenth day of December, in the year Our Lord one thousand eight hundred and fifty-five, between Delino Dexter Calvin and Ira. A. Breck, both of the City of Kingston; trading under the name and firm of Calvin and Breck, of the first part and Her Majesty Queen Victoria represented herein by the Honorable F. Lemieux, Chief Commissioner of Public Works, for the Province of Canada, and the Honorable Hamilton H. Killaly, Assistant Commissioner of Public Works, for the said Province of the other part.

Whereas the said Commissioners (acting for and on behalf of Her Majesty as aforesaid) caused public notice to be given that tenders and proposals would be received by them for Tug Boats to be placed on the River St. Lawrence, for the purpose of towing Vessels and other craft between Lachine and Kingston on the said River, and whereas the said Calvin and Breck tendered for the same, and the said Commissioners have accepted their tender and resolved to enter into a contract with them for the supply of such Tug Boats accordingly. Now these presents witness, that the said Calvin and Breck in consideration of the bonus or sum of money hereinafter mentioned, and the covenants and agreements hereinafter expressed and contained on the part and behalf of the said Commissioners (acting as aforesaid) do hereby for themselves, their heirs, executors and administrators covenant and agree with her Majesty, Her Heirs and Successors in manner following, that is to say:

That they will during three years to wit, during the period of Navigation in each of the years one thousand eight hundred and fifty-five, one thousand eight hundred and fifty-six, and one thousand eight hundred and fifty-seven, well and sufficiently tug and tow all vessels and other craft, for which such service shall be demanded or required by the Owner or Owners, Masters, Captains or persons in charge thereof from any port or place to any other port or place on the main and usual line of communication between the Ports of Lachine and Kingston on the said River.

That the said Calvin and Breck shall and will during the season of Navigation in each and every of the years aforesaid, well and sufficiently furnish, provide, maintain, repair and keep in repair at least six steamboats of such class and power as will insure the due and satisfactory performance of the service of towing aforesaid, that they will provide and man the said boats, and each of them with sufficient crews and experienced and skilful engineers for working and managing the same, and will furnish and equip the said boats with all manner of supplies and materials which may be necessary for promptly towing all such vessels and other craft for which such service may be required as aforesaid between the said Ports of Lachine and Kingston, or for any part of the distance between the said Ports on the main and usual line of communication at any time during the period aforesaid, and also that they will procure and keep ready for use such extra supplies and materials as may be necessary to prevent delay or inconvenience in case of accident.

That they shall not nor will at any time during the period aforesaid carry or permit any of the said steamboats to take on board or carry freight of any kind, or take rafts in tow, or perform or permit the said boats to perform any other service than that of towing vessels and craft engaged in trade.

That they shall and will upon the opening of the Navigation of each and every year during the term of th isagreement, place and continue steamboats (to be used for the purpose of towing as aforesaid) on the following routes respectively, namely:

One steamboat between Lachine and the Beauharnois Canal.
One steamboat between the Beauharnois Canal and Cornwall.
Two steamboats between Dickinson's Landing and Prescott.

Two steamboats between Prescott and Kingston.

That should any of the boats or either of them so placed for the purpose of towage, as aforesaid be found incapable of fully and efficiently performing the business of towing on the route on which the same is placed, they the said Calvin and Breck shall and will immediately replace such boat by another boat capable of performing such duty efficiently and to the entire satssfaction of the Commissioners aforesaid.

That they shall not nor will permit the said boats or either of them to be taken through the Canals while engaged in towing as aforesaid but shall and will keep and continue them on the routes to which they are respectively assigned.

That they shall and will during the continuance of this agreement cause the said boats to make and run the following trips respectively to wit:

The boat placed on the route between Lachine and Beauharnois Canals shall make two trips daily, that is to say, two trips from Lachine to Beauharnois Canal and back to Lachine.

The boat placed on the route between the Beauharnois Canal and Cornwall shall make one trip daily, that is to say, one trip daily from the head of the Beauharnois Canal to the lower end of the Cornwall Canal and back to the Beauharnois Canal.

The two boats placed on the route between Dickinson's Landing and Prescott shall each make a daily trip over the whole, starting from opposite ends of the said route.

The two boats placed on the route between Prescott and Kingston shall also make a daily trip each over the route in opposite directions.

That they shall and will from time to time, and at all times during the continuance of this agreement remove the said boats or any or either of them from the said route on which the same may be placed to any other route on which the said Commissioners or their successors shall designate.

That they shall and will during the continuance of this agreement, so manage and conduct the said boats, that vessels shall be towed from Lachine to Kingston within four days, and from Kingston to Lachine within three days, unless such vessels or vessel shall be detained for an unusual or unreasonable time in passing through the Canals or some or one of them.

That they shall and will in the event of any accident or damage happening to the said boats or any one of them by which the towing of vessels may be interrupted or delayed, procure another or others with all possible despatch to supply the place of the boat or boats so damaged.

That they shall and will during the continuance of this agreement furnish and provide good and efficient tow-lines for the purpose of towing vessels.

That they shall and will at all times take in tow vessels and craft for which such service may be required and shall continue to tow every such vessel or other craft to its destination without partiality or favor of any kind, and they shall not nor will they cast off any vessel in order to take in tow some other vessel without the consent of the person in charge of the vessel so cast off, without preference taking the first arrived at the port by rotation under penalty of fifty pounds, and they shall and will in case of any dispute between the Captain, Master or person in charge of any vessel or craft. and the said Calvin and Breck, their servants or agents as to the time or order in which such vessels or craft shall be taken in tow, refer the said dispute to such officer as may be appointed by the said Commissioners or their successors in office, to hear and determine disputes at the port or place where the same shall happen, and shall and will abide by his decision.

That they shall and will at all times during the continuance of this agreement make or cause to be made all such entries, certificates and memoranda, and give or cause to be given all such information, and do and perform or cause to be done and performed all such acts, matters and things as may from time to time be required or directed by the said Commissioners, and their successors in office (if notice shall be given to the said Calvin and Breck, their servants or agents,) for the purpose of keeping a record of the name of every such vessel or other craft taken in tow as aforesaid, the name of the owner or master thereof, the breadth of beam and draught of water thereof, the amount of towage payable in respect thereof, the name of the port or place where the same was, or is taken in tow, and of the port or place to which she is bound, the hour of departure from port and arrival thereat, and generally shall and will do and perform all such acts and things as may be required or directed by the said Commissioners and their successors in office, for the purpose of obtaining and keeping record of any fact or statistics arising out of or connected with the execution of this agreement or any part thereof.

And it is hereby agreed by and between the said parties to these presents that for every hour which any vessel may be detained beyond the time hereinbefore limited for the downward and upward trips respectively by the act or default of the said parties of the first part their servants or agents, the following sums may be deducted by the said Commissioners or their successors in office from the money payable to them as hereinafter mentioned, namely:

For a vessel over twenty-five tons and under seventy-five tons, five shillings per hour.

For a vessel over seventy-five tons and under ninety tons, six shillings and three pence per hour.

For a vessel over ninety tons and under one hundred and ten tons, seven shillings and six pence per hour.

For a vessel over one hundred and ten tons and under one hundred and twenty-five tons, eight shillings and nine pence per hour.

For a vessel of one hundred and twenty-five tons and under one hundred and fifty tons, ten shillings per hour.

For a vessel over one hundred and fifty tons, eleven shillings and three pence per hour.

And it is hereby agreed that the said Commissioners and their successors in office, shall and may decide in all cases whether such detention was caused by the act or default of the said parties of the first part their servants or agents, but the deduction of any sum as aforesaid shall not discharge the said parties of the first part from any claim by other parties for damages for or on account of such detention, but all parties injured by such detention shall be entitled to recover in any action as if such deduction by the Commissioners as aforesaid had not been or could not be made.

And it is further agreed by and between the said parties that the rates per mile which may be charged for the towage of all such vessels as pass through the Canals or either of them, shall not exceed the sum specified in the Schedule hereunto annexed and signed by the parties to these presents for towage upwards, and shall not exceed one-third of such rates for towage downwards, and the following shall be deemed and taken to be the number of miles respectively for which such rates may be charged on the following routes respectively:

From the Lachine to the lower entrance of the Beauharnois Canal, nineteen miles.

From the upper entrance of the Beauharnois Canal to Cornwall, forty miles.

From Dickinson's Landing to Prescott, forty-one miles.

From Prescott to Kingston, sixty-one miles.

And when any vessel shall be taken in tow at any other port or place than those above mentioned it shall be lawful to charge for the whole distance between the Port or place to which such vessel is towed and the port or place from which the Steam or Tug Boat started at the commencement of the trip.

And it is further agreed by and between the said parties, that it shall be lawful for the said Commissioners and their successors in office at any time during the continuance of this agreement, to change, modify or alter the rates of towage mentioned in the schedule hereto annexed, and to adopt some other mode of ascertaining and levying the same; Provided always, that in making such change or alteration the said Commissioners shall endeavor to adjust the same so that the amount of towage which said Calvin & Breck may charge upon, a given number or fleet of vessels, including those of the largest and smallest tonnage shall be as nearly as possible equal to the amount which they would be entitled to charge upon the same number of vessels under the schedule hereto annexed.

And it is further agreed by and between the said parties, that it shall be lawful for the said Commissioners and their successors in office, acting for Her Majesty as aforesaid, and at any time during the continuance of this agreement to cancel and put an end to the same if they shall see good cause for so doing, and in such case the said Calvin and Breck, their heirs, executors and administrators shall be entitled to receive compensation for such losses as they may sustain, for or in respect of charters and materials on hand, and other losses which they may actually and *bona fide* sustain by reason of such cancelling and putting an end to this agreement, but no loss of profit or prospective advantages of any kind shall be deemed a loss for which compensation can be claimed in the event of this agreement being so cancelled and put an end to as aforesaid.

Provided always, that in case of dispute or disagreement between the said Commissioners and the said Calvin and Breck, their executors or administrators as to the amount of such compensation, the question in dispute shall be referred to, and be discussed and determined by two indifferent persons, one to be nominated by the said Commissioners or their successors in office, and one by the said Calvin and Breck, their executors or administators, by writing under their respective hands, and every award or determination to be from time to time made by such arbitrators shall be binding and conclusive as to the matters so to be submitted to them respectively; Provided every such award be made in writing and ready to be delivered to the said Commissioners or their successors in office, and to the said Calvin and Breck or their executors or administrators within the space of thirty days from the date of such reference as aforesaid, but in case such arbitrators so to be from time to time nominated as aforesaid, shall not make their respective awards within the space of thirty days next after such respective references to them as aforesaid, then every such dispute shall be referred and be discussed and determined to such one indifferent person as such first named arbitrators shall from time to time by any writing or writings under their respective hands nominate or choose as an umpire in the matter so referred to them respectively as aforesaid, and whatever end or determination the said umpire shall from time to time make of or concerning the matters to him respectively referred, the same shall be binding and conclusive between the parties hereto; Provided such umpirages or awards shall be respectively made in writing and ready to be delivered to the said Commissioners or their successors in office, and to the said Calvin and Breck or their executors or administrators within the space of thirty days next after the nomination or appointment of such umpire.

And it is further agreed by and between the said parties, that all vessels to or from Canadian ports shall be taken in tow in preference over such as may be from an American port to an Amreican port, in fact, that no such vessel shall be taken in tow if any of the former demand towage, and in the case of a vessel from an American port to an American port being in tow, and that in the course of the trip a vessel to or from a Canadian port is found waiting for towage, she shall be taken on and the other thrown off if the power of the Tug is insufficient for all.

And it is further agreed by and between the said parties, that it shall and may be lawful for the said Calvin and Breck at all times during the continuance of this agreement, to carry, convey, or cause to procure the carriage and conveyance through the Canadian Canals, of all such fuel as they may require for the use of the said Tug Boats without payment of canal dues or tolls in respect thereof.

And it is further agreed by and between the said parties, that it shall at all times be lawful for the said Commissioners to cause the said Boats or any or either of them, and their Engines, Boilers and Machinery thereof to be inspected by a competent Engineer or Engineers, and if such Engineer or Engineers shall report the same to be dangerous or unsafe in any respect the said boat or boats shall be immediately removed or repaired and made safe as the said Commissioners shall direct.

And it is hereby further agreed by and between the said parties that it shall not be obligatory to start from either of the Ports of Lachine or Kingston on the sabbath day, to make an upward or downward trip, but if the said Boats or either of them shall be at any intermediate Port or place on such day, it s all be lawful for the said Boat or Boats to continue and finish the trip so in course of being run.

And it is also agreed by and between the said parties, that printed copies of the Schedule hereto annexed, and of each and every Schedule of towage rates which may from time to time be prescribed by the said Commissioners or their Successors pursuant to this Agreement shall be put and placed by the said Calvin and Breck in each of the said Boats in the most conspicuous part thereof, so that all persons desirous of seeing and inspecting the same, may have the opportunity without inconvenience or trouble.

And it is further agreed as aforesaid that in any question or dispute arising upon any covenant Stipulation or agreement herein contained no reference shall be had or made to the original tender of the said Calvin and Breck, but the same and every other tender, advertisement proposal and notice to or from any person or in any manner relating to the subject matter of this Contract made or published before the date hereof shall be deemed and taken to be wholly superseded by these presents.

And Her Majesty, (represented herein by the said Commissioners) for herself, Her Heirs and Successors doth promise and agree to and with the said Calvin and Breck, their heirs, executors and administrators in manner following, that is to say:

That upon the due and faithful performance of all and singular the covenants, stipulations and agreements herein contained, and on the part of the said Calvin and Breck, to be kept and performed, the said Commissioners and their Successors in office (acting as aforesaid) shall and will pay or cause to be paid to the said Calvin and Breck their heirs, executors or administrators, the bonus or sum of six thousand pounds currency for each and every of the said three years, (if this Agreement shall remain in force) the said yearly bonus or sum to be paid in three equal instalments of two thonsand pounds on the first day of August, on the first day of October, and on the first day of December in each year.

And it is further stipulated and covenanted between the aforesaid parties that the said Calvin and Breck of the first part shall provide and furnish the several Tug Boats with suitable and sufficient Tow Ropes by which the Vessels shall be towed and for the use and wear and tear of which Tow Ropes, they the said Calvin and Breck shall be entitled to charge at the rate of three pence per mile, which charge is to be paid by the respective Masters or owners of Vessels together with the charges for Towage.

In witness whereof the said Commissioners acting for and in the name of Her Majesty have to these presents signed their names and set their seal at Toronto, in the Province of Canada, and Thomas A. Begly, Esqirue, Secretary of the said Public Works, hath also countersigned the same this seventeenth day of December, in the year of our Lord one thousand eight hundred and fifty-five, and the said Calvin and Breck have to these presents signed their names and set their seals at Toronto, in the Province of Canada aforesaid, this seventeenth day of December, in the year of our Lord one thousand eight hundred and fifty-five.

(Signed) D. D. CALVIN, (L. S.)
" J. A. BRECK, (L. S.)
" THOMAS A. BEGLEY, (L. S.)
" F. LEMIEUX,
Chief Commissioner Public Works, (L. S.)
" H. H. KILLALY,
Assistant Commissioner Public Works, (L. S.)

(Signed,) THOMAS A. BEGLY,
Secretary Public Works.

Signed, Sealed and delivered, in presence of

(Signed) P. M. VANKOUGHNET, (to D. D. CALVIN.
(Signed) GEORGE MALONE, (to J. A. BRECK.

Witnesses to the signatures of the Commissioners and countersignature of the Secretary of Public Works,

(Signed) J. HARPER,
" J. GUY,

SCHEDULE of Rates for Towage per mile for each Vessel upwards, referred to in the accompanying agreement.

Draught of Water.	BREADTH OF BEAM.														
	Feet 12	Feet 13	Feet 14	Feet 15	Feet 16	Feet 17	Feet 18	Feet 19	Feet 20	Feet 21	Feet 22	Feet 23	Feet 24	Feet 25	Feet 26
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Two	0 10	0 11	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	1 10	1 11	2 0
Two and a half	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 9	1 10	1 11	2 0	2 1	2 2	2 3
Three	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 10	2 0	2 1	2 2	2 3	2 4	2 5	2 6
Three and a half	1 4	1 5	1 6	1 7	1 8	1 9	1 10	2 0	2 1	2 2	2 3	2 4	2 6	2 7	2 9
Four	1 6	1 7	1 8	1 9	1 10	1 11	2 0	2 2	2 3	2 4	2 5	2 6	2 8	5 10	3 0
Four and a half	1 8	1 9	1 10	1 11	2 0	2 1	2 2	2 3	2 4	2 5	2 6	2 8	2 10	3 0	3 3
Five	1 10	1 11	2 0	2 1	2 2	2 3	2 4	2 6	2 8	2 9	2 11	3 1	3 2	3 4	3 6
Five and a half	2 0	2 1	2 2	2 3	2 4	2 5	2 6	2 8	2 9	2 10	3 0	3 3	3 4	3 6	3 8
Six	2 2	2 3	2 4	2 5	2 6	2 7	2 8	2 10	2 11	3 0	3 2	3 4	3 6	3 8	3 10
Six and a half	2 4	2 5	2 6	2 7	2 8	2 9	2 10	3 0	3 1	3	3 4	3 6	3 8	3 10	4 0
Seven	2 6	2 7	2 8	2 9	2 10	2 11	3 0	3 1	3 2	3 4	3 6	3 8	3 10	4 0	4 2
Seven and a half	2 8	2 9	2 10	2 11	3 0	3 1	3 2	3 3	3 4	3 6	3 8	3 10	4 0	4 2	4 4
Eight	2 10	2 11	3 0	3 1	3 2	3 3	3 4	3 5	3 6	3 8	3 10	4 0	4 2	4 4	4 6
Eight and a half	3 0	3 1	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 11	4 0	4 1	4 3	4 5	4 7
Nine	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 9	3 10	4 0	4 1	4 2	4 4	4 6	4 8

NOTE.—The Contractors for Towing is bonnd to provide and furnish Tow-Ropes, for the use wear and tear of which they are entitled to charge at the rate of three pence per mile.

(Signed,) D. D. CALVIN,
" J. A. BRECK.

Witness to the signature of D. D. Calvin and J. A. Breck,
(Signed,) GEORGE MALONE.

No. 11.

ARTICLES OF AGREEMENT BETWEEN G. B. SYMES AND H. ALLAN AND THE COMMISSIONERS OF PUBLIC WORKS FOR A LINE OF OCEAN STEAMERS.

On the twenty-eighth day of September in the year of our Lord one thousand eight hundred and fifty-five.

Before us the undersigned Public Notaries duly commissioned and sworn in and for that part of the Province of Canada heretofore called Lower Canada, residing in the City of Quebec, personally came and appeared Hugh Allan, Esquire, Merchant, residing in the City of Montreal, of the first part; and the Honorable François Lemieux, Chief Commissioner of Public Works for the Province of Canada, residing in the City of Quebec, acting hereinfor and on behalf of Her Majesty's Government in the said Province of Canada of the second part; which said parties acting as aforesaid, in the presence of us the said Notaries, did and do hereby covenant, promise and agree to and with each other in manner and form following, that is to say:

The said Hugh Allan did and doth hereby promise and engage and bind and oblige himself to establish, maintain and keep up a regular line of large and powerful Screw Steamers to ply between the port of Liverpool and the port of Quebec or Montreal once in every fourteen days, during the season of and for the navigation on the River St. Lawrence, and between the ports of Liverpool and Portland once in each month during the winter; that the said Steamers shall be first class vessels, shall be not less than one thousand seven hundred and fifty tons builder's measurement, and not less than three hundred and fifty horse power, and shall not be inferior in speed comfort and power to the Steamship called Canadian, belonging to the said Hugh Allan.

That the said Hugh Allan shall be bound to perform the service from Liverpool to Quebec or Montreal during the summer season from the opening of the navigation of the River St. Lawrence until its close, every year, and to make fourteen trips from Liverpool to Quebec or Montreal during the St. Lawrence navigation and fourteen trips from Quebec or Montreal down to Liverpool, during the said time, and the communication between Liverpool and Portland shall commence each year at the time of the close of the navigation of the River St. Lawrence, till the opening thereof, and during that time the said Hugh Allan shall be bound to make five trips from Liverpool to Portland and five from Portland to Liverpool when the navigation shall be closed on the said River St. Lawrence in winter; but it is to be understood however, and it is hereby expressly covenanted and agreed by and between the said parties, that in the event of a late spring or other cause occurring to render the last trip to the River St. Lawrence hazardous or inexpedient (which the Government is to be judge of) then and in that case the Contractor is authorized to run to Portland, but in no case is he to make less than thirteen trips from Liverpool to Quebec or Montreal during the summer season, and the full number of nineteen trips is to be made up by an additional one to Portland, and it is covenanted and agreed by and between the said parties that one of the said steamers shall leave Liverpool and one shall leave Canada, Quebec or Montreal once every fourteen days, during the St. Lawrence navigation season and that one shall leave Liverpool and Portland respectively every month during the time when the navigation shall be closed on the River St. Lawrence in the winter.

It is to be understood that the said Contractor shall have the option of deciding from time on the port of Quebec or that of Montreal for the termination of the trips of his said vessels to the St. Lawrence, as the state of the water in the River and Lake or other cause may in his judgment make it advisable.

That the said Steamers shall be provided by the said Contractor and shall be ready and all the other arrangements made so as to commence the regular service of the line in the month of April one thousand eight hundred and fifty-six, and in the event that the Contractor shall be unable to commence the regular trips in April next, this present contract is to be considered and declared null and void and of no effect whatsoever.

That the said line shall be maintained regularly for the space and term of five years from the commencement of the service in April next, and that during that time the said Contractor shall be bound to carry each trip such mails as may be given to him or to the officers in charge of his vessels by the Postmaster General of this Province for transmission to Liverpool, or by the Post Office authority in Liverpool for carriage to this Province: but there is to be no liability under this contract on the part of the said Contractor for the contents of the said mails, when the same are not delivered, in case the failure to deliver the same is the result of dangers of the sea or of such as are peculiar to steam navigation and not caused by neglect or by want of proper skill or by misconduct on the part of the said Contractor his agents or servants:

That the days for the departure of the said Steamers shall be appointed by His Excellency the Govenor General in Council or the person administering the affairs of this Province from time to time and so often as he may think fit and proper for the best interests of public service, provided in cases of changes one month's notice be given to the Contractor by the Government.

And by these presents the said Hugh Allan doth bind and oblige himself to have at all times the command of a sufficient number of Steamers of the description aforesaid, to perform the trips hereinabove mentioned and agreed upon, the number of the said trips being nineteen in coming as follows: fourteen to the St. Lawrence and five to Portland and *vice versa* as aforesaid; that the time occupied by the said Steamers on the outward passage from Liverpool shall not exceed fourteen days, and on the homeward passage shall not exceed thirteen days on an average of the trips performed every three months.

And for the due performance of the said services the said Hugh Allan shall receive from Her Majesty's Government in this Province of Canada, and the said Honorable Commissioner of Public Works did and doth hereby bind and oblige himself and his successors in office to pay to the said Hugh Allan the sum of twenty-four thousand pounds sterling for each and every year of the duration of the present contract; the said sum to be payable in four equal and quarterly payments of six thousand pounds sterling, each and in addition thereto the said Steamers shall be exempted from the payment of Light dues and all other provincial or local dues, taxes or imposts whatsoever during the time aforesaid.

And it is further covenanted and agreed between the said parties that the said Hugh Allan doth bind and oblige himself to pay to the Receiver General of this Province for every trip not performed according to the present Contract, a penalty of one thousand pounds sterling in addition to his not being entitled to the payment for the trips in proportion to to the amount of the present contract.

It is also expressly understood and agreed to, that it shall be at the option of the said Government of Canada to put an end to this contract and render the same null and void at any time, should the terms and conditions thereof not being fairly fulfilled and carried out in their true and honest meaning, and that without being obliged to have recourse to law: but should the Government determine upon annulling the contract, no penalty shall be payable for the breach, or any of the breaches for which the contract shall be so annulled, nor shall any penalty be incurred by any delay occasioned by shipwreck or other accidents not arising from misconduct or from want of skill or foresight on the part of the Contractor or his servants.

And it is further agreed covenanted and understood by and between the said parties, that the said Contractor may bring the contract to a close on the thirty-first day of December of any year after the first year of its duration, upon giving notice to the said Government of Canada of his intention to do so, at least six months beforehand.

And to these presents came and intervened George B. Symes, Esquire, Merchant, of the City of Quebec, who did declare that having taken communication of these presents he doth bind and oblige himself jointly and severally (*solidairement*) in favor of the Government for the said Hugh Allan for the entire accomplishment and fulfilment of all and each of the clauses of the present Contract and for the due execution of this Contract.

And for the due execution hereof, the parties have made election of domiciles, to wit, the said Contractor, and security at their actual and respective residences and the said Honorable François Lemieux at the Office of the Department of Public Works which places, &c. For thus, &c.

Thus done, passed and sealed at Quebec aforesaid on the day, month and year first above written, under the number eight thousand and eight hundred, in the Office of the said Department of Public Works, and the said parties and security together with Thomas A. Begley, Esquire, Secretary of the Department of Public Works, also present, have signed together with us the said Notaries after the reading of these presents.

Signed on the original remaining of record in the office of Joseph Petitclerc one of the undersigned Notaries.

GEORGE BURNS SYMES,
HUGH ALLAN,
F. LEMIEUX,
Chief Com. of Public Works.
THOMAS. A. BEGLY,
Secretary Public Works
S. GAMACHE, N. P.
JH. PETITCLERC, N. P.

True copy, one marginal note approved is good. One word struck out is null and void.

(Signed,) Jh. Peticlerc, N. P.

No. 12.

To Wm. B. Robinson, and C. E. Casgrain, Esquires, Commissioners of Public Works of the Province of Canada:

Gentlemen,—Having received instructions, according to letters No. 2,386 of the 11th of Nov., and No. 2,456 of the 24th of Nov., 1847, to make a survey for a line of Canal to connect Lake St. Louis of the St. Lawrence with Lake Champlain. I have the honour of submitting the following Reports. The surveys were commenced on the 26th of November, and concluded upon the 24th of December. I was assisted in this duty by G. G. Dixon in the Department of Levels, and by T. S. Killaly, and T. S. Rubidge, in that of Surveys. Previous to the commencement of the surveys, and during their progress, suggestions were offered touching the location of the line of said Canal, and opinions confidently advanced as to the propriety of said suggestions. It therefore became necessary to examine the country to a certain extent with reference to said suggestions, in order to determine their value or otherwise. The first proposition with which I became acquainted was the one that the Champlain terminus of the Canal should be near Lacolle or Rouse's Point, in order to avoid the bad and tortuous navigation of the lower part of Lake Champlain, or that part of the Richelieu between St. John's and the Province Line or Rouse's Point. Accordingly, with a pilot of good reputation and long experience of the navigation of the Lake Champlain from St. John's to Whitehall, I sounded said questionable channel of said part of said Lake, and found the channel good and very direct with one exception, and that at what are termed the Flats, near and below the Isle au Noix, where the channel is indirect, and shoal for somewhat, within 100 rods, I found the channel of said part of the Lake at low water as follows:

	DISTANCE.	DEPTHS.
From St. John's to Point Lamoule or Grand Ligne.....	6 miles.	10 to 28 feet.
From Point Lamoule to Isle aux Noix Flats...........	5 "	8 to 20 "
First three miles very wide channel..................		8 to 10 "
Remaining two miles..............................		15 to 20 "
On said Flats within 100 rods......................	100 rods.	7 to 8 "
From said Flats to Lacolle.........................	6 miles.	12 to 25 "
From Lacolle to the Province Line..................	4 "	12 to 28 "

Almost verifying a statement heretofore made public.

The shoal of the Flats is composed of a material very easily dredged, and may cost not only deepening but improving the direction of the channel, £3,427 10s currency, at once settling the question that no lengthening of said Canal would be justified for avoiding this obstruction, and further making a strong case. Should the natural channel of said part of the Lake, say 20 miles, require an expenditure equal to the cost of an independent Canal of the same length, said improvement of the natural channel would most certainly be the better course, as when done it would be the channel of a River or Lake not requiring annual repairs, and wherein vessels may be driven at a speed unrestricted, rather than a Canal requiring annual repairs, also a portion of the navigation requiring greatly modified speed of vessels.

Secondly. Sundry propositions under one head. A direct line nearly from Caughnawaga to St. John's. The result of our surveys and levels shows that any such line terminating at St. John's or upon Lake Champlain at any point southerly from St. John's is impracticable in reason. Nearly in a direct line from St. John's to Caughnawaga, and near equally distributed, occur the villages of Lacadie, St. Philips, and St. Pierre. Lacadie is 50 feet above our Champlain reach; St. Philips is 33 feet above our Champlain reach; St. Pierre is 11 feet above our Champlain reach. The streams passing these villages, and all other streams whose courses we intersect, come from sources southerly of these villages, showing that the country southerly of these points is higher than it is at these points. There is a large swamp in Savannah, southwesterly from Lacadie, known to be at least 75 feet above Lake Champlain. La Petite Rivière de Montreal passes Lacadie, but the sources of this River are in Hemmingford, upon the Province Line, shewing positively that there is no country bordering upon this River between Lacadie and the Province Line as low as the country at Lacadie. As I intend to exhibit a longitudinal section of a line nearly direct, upon which to base a comparison with the line to be recommended, I will drop this direct line suggestion for the present.

Thirdly. With respect to the prayer of citizens of Montreal upon the subject of the enterprise in question, I beg to state the following inquiry: On what account or for what business is the Canal in question proposed to be constructed? —In general terms it may be answered that it was not proposed directly for guarding, conserving, or advancing the interests of Montreal as a locality, but primarily to give facilities to and to induce a very large and increasing business between the northwestern part of the United States and that part of the United States extending easterly and northerly from the Hudson River, mainly called New England, to go and come by the way of the St. Lawrence, therefore by the way of the Public Works of Canada, which business, without the facility proposed, would not come into the Province at all.

Secondly. The Canal in question is proposed for the benefit of the Lumber Trade of Canada, and particularly of the Ottawa, as it is known that lumber in New York and upon the Hudson River has borne for several years past, and is likely in future to bear, higher rates than in the English markets. Whether or not this may always be the case, said Canal will give to said trade a choice of markets.

Thirdly. It is no doubt safe to assume that other great and important commercial interests will grow out of the facilities made by this Canal, which will tell not only to the advantage of the Province, but to the City of Montreal. Now will not Montreal be indirectly benefitted by the advantage which the Province may derive from the *transit* of said large and increasing business between the North-west United States and said section of the United States called New England? Whatever benefits the lumber trade of Canada, and particularly that of the Ottawa, must unquestionably and directly benefit Montreal as a commercial city. It seems clear, therefore, that with reference to the enterprise, the direct interest of Montreal is to give every facility and aid, and to the prosecution of the work in question and to its prosecution upon that route and location, that will best serve the prominent considerations and interests which have induced its proposition.

Lachine, which has become, as to facilities of access, the suburb of Montreal, may for all business purposes be considered the St. Lawrence terminus of this Canal. A merchant may leave his counting house in Montreal and in twenty minutes be in his sub-counting house at Lachine to attend to his interests in the cargo of a steamer outwardly bound, or to one having arrived by the way of this Canal. Finally, upon said prayer, I beg to ask the merchants of Montreal to consider to what extent they would injure and prejudice the interests and business for which this Canal is proposed, by compelling that business to descend the Lachine Canal, which has 44½ feet lockage, and thence ascend said 44½ feet lockage plus the elevation of Lake Champlain above Lake St. Louis, which is 29 feet, making 118 feet of lockage, whereas upon leaving Lachine or Caughnawaga it has only 29 feet of lockage to encounter; all which difference, 89 feet of lockage, is to be encountered by said business, and that without gaining time or the advantages of a shorter line.

Fourth,—As to a summit level upon the line of the proposed Canal higher than Lake Champlain, the plan of carrying the Canal from Caughnawaga to Lake Champlain having a summit level higher than Lake Champlain, had early suggested itself to me and subsequently has been purposed by others, but upon consideration I concluded there were cogent objections to said plan, one of which is that for every foot said summit should be elevated above Lake Champlain, would cause two feet of lockage; another and rather an insuperable objection to said plan is that for any considerable elevation above Lake Champlain there is not water enough to supply a Canal of the proposed guage, (as Beauharnois and Lachine Canals) for any considerable business; even for a very moderate business in midsummer, water would have to be collected from many sources and reserved in extensive reservoirs, all of which would cause great and extraordinary expense, and after all the business could not be secured against interruption from the want of water. And still further any such line would cost more than the line about to be purposed; another and the last project proposed is to run the Canal from Caughnawaga following the St. Lawrence toward and near Laprairie, thence to the Richelieu. I am not informed as to the particular views which have induced this suggestion, but it would probably require a longer Canal, and so far as the line would be confined to the bank of the St. Lawrence, the Canal would be much more expensive than the corresponding distance upon the line to be proposed. I cannot perceive that any important advantage would be gained by this location, it certainly would be of no advantage to Montreal. Having as I believe duly considered the various suggestions that have been offered, whether originating in local interest or supposed knowledge of the topography of the country, I will now present the line which I consider the one for adoption, commencing at Lake Champlain.

St. John's is the southern terminus of the proposed Canal, thence enlarging and improving the Chambly Canal to a point about one mile below Hatt's Mills at St. Thérèse, said point being eight and seven-eighth miles from St. John's; thence leaving said Canal and running north-westerly but following the level of Lake Champlain, we cross La Petite Rivière de Montreal about two miles below Kennedy's half-way house upon the old stage road leading from Laprairie to St. John's; also across said stage road at a point about seven miles from Laprairie; thence intersecting the line of the St. Lawrence and Champlain Railroad at a point five and one-fifth miles from Laprairie, and running about one mile northerly of the Villages of St. Philip and St. Pierre, drops into the St. Lawrence near the Village of Caughnawaga. In order more readily to estimate the cost of constructing a Canal upon this line, I shall take it up in sections of quarter or less extent which present uniform character of work and manner of construction. Premising that the guage for this Canal is the same as that of the Beauharnois and Lachine Canals, to wit:—The width of the Canal at bottom to be eighty feet; the slopes of the banks rising according to a base of two feet horizontal to one foot perpendicular; the banks to be fourteen feet high and the grade arranged for ten feet water in the Canal which will give a width of Canal at the surface of its water of one hundred and twenty feet.

It will be perceived by the plan of the Canal and longitudinal section herewith presented, that as the line was traced a lock was dropped before crossing the Tortue; the further prosecution of the survey shewed conclusively that the Lake Champlain beach had better be extended to near Caughnawaga, thereby gain a better direction and as cheap a line. However the estimate is based upon the line as traced and presented. It is presumed that upon a careful location, one for actual construction, many of the considerable curves would be modified; at the same time there would probably be many moderately curved lines formed where tangents now appear. With respect to the St. Lawrence terminus I beg to remark that at the time I was at Caughnawaga the weather was very severe, the ice was running in great quantities and the bays were covered with thick ice, it was, therefore, quite impossible to make a satisfactory examination of the two points only that can be in question, to wit:—The point immediately below the Village of Caughnawaga and the bay above said Village; I have since visited said points but had not satisfactory success, therefore I propose to leave the subject open for settlement at a more clement season, with this remark, that if the bay above the Village should prove in all respects the most favorable for said terminus, the expense of the Canal will not be greatly increased by adopting it as such, for the reason that much rock excavation is inevitably to be encountered upon approaching the lower point would be avoided upon the line to the bay above the Village, and though the Canal would be somewhat prolonged, the line of navigation would not be lengthened. I believe the increased expense of extending the Canal to the bay above the Village may be safely stated at within £5000.

ABSTRACT OF ESTIMATE.

	Currency.		
Sect. 1.—Lake Champlain Terminus, between the Steamboat Wharf and Jones' Bridge at St John's	3,779	12	0
Sect. 2.—From Jones' Bridge to head of Ste Thérèse Island—3.24 miles	24,561	6	7
Sect. 3.—Ste. Thérèse Island, improving Tow-path—2.38 miles	380	0	0
Sect. 4.—From Ste. Thérèse Island to .76 on point of leaving the Chambly Canal—3.25 miles	20,147	19	10.
Sect. 5.—From Chambly Canal to .116½ or Raymond's Inn—3.61 miles....	14,748	16	6
Sect 6.—From .116½ to .208 or to the River of St. Philippe—9.57 miles	43,180	0	4
Sect. 7.—From River St. Philippe to opposite Dunn's Mills—6.49 miles	40,112	10	10
Sect. 8.—From opposite Dunn's Mills through Indian Woods to .299—3.01 miles...	16,089	0	2
Sect. 9.—From .299 to the St. Lawrence—0.94 miles....	17.152	12	4
Clearing and grubbing	5,280	0	0
Mucking	2,112	0	0
Ditching	8,520	0	0
Caughnawaga Pier	7,465	0	0
Slope walling "inside"	43,500	0	0
Locks	53,750	0	0
Aqueducts "Stone"	24,006	1	11
Aqueducts Wooden Trunks	7,502	10	5½
Culverts	16,988	2	0½
Bridges....	12,698	15	0
Waste weirs	1,202	11	1
Lock, Bridges and Warehouses	2,700	0	0
Wharfing	2,682	18	0
Fencing	3,545	0	0
Land Monuments	150	0	0
Damages, "Land taken"	12,150	0	0
Damages, "Incidental"	7,850	0	0
Dredging at Isle aux Noix....	3,437	10	0
Superintendence	12,500	0	0
	£403,202	8	0¾
Add 12½ per cent.	50,400	0	0
Total	£453,602	8	0¾

The lengths of Sections, as above detailed, make the length of the enlargement and improvements of the Chambly Canal, to be $8\frac{7}{8}$ miles, and the length of the New Canal to be $23\frac{62}{100}$ miles, and the whole length of the St. Lawrence and Champlain Canal 32½ miles. Whether or not the advantages to be secured by the construction of the proposed Canal are of sufficient importance to the Province to warrant the expenditure of the sum required by the foregoing estimate is perhaps a matter upon which I am not according to instructions required to remark. And it is not impossible that there are others who may have a better perception of the effects which the construction of said Canal would have upon the interests of the Province as such, and upon the business of the whole Country in a commercial point of view. But as there are obvious considerations commending this enterprise to the Provincial Government, I take the liberty of remarking: In 1833, I had the honor of reporting to the Commissioners of Upper and Lower Canada, appointed for improving the navigation of the River St. Lawrence, upon the subject of said improvements, from my report to the Commissioners of Lower Canada 14 years since, I beg to quote remarks which I would now address to the Government of Canada. It is perhaps worth while to consider the extent and fertility of the Country, the natural outlet of which is the St. Lawrence.

This Country lies upon the North side of the imaginary line along the waters flowing into the St. Lawrence, but as much or more of it lies upon the south side of said line.

The Country referred to both to the north and south of said line is famed for the ease of its cultivation and the luxuriance of its productions.

It is settling very fast and is capable of sustaining a very dense population. I consider that it lies much in your power, the Government of Canada, to say in what direction these people shall go to market.

The latter remark applies with more and peculiar force with reference to the enterprise in question. It is generally known to commercial men in North America that the portion of the United States called New England to which I have alluded, is rapidly becoming a manufacturing Country.

Nature indicates to that Country and to Canada, suggesting the Country whence said New England may procure its agrciultural supplies with the greatest advantage which, by a little improvement of the way, is no doubt the North-west United Sates. I believe it would be impossible now to estimate the extent of commercial intercourse that will take place between said sections of the United States; results have shewn all estimates of the advancement and productive power of the north western States. Even relating to periods and times already past to be ridiculous failures, for the reason that the elements of progression generate and produce other elements to such extent and variety that computation is baffled in the product of bases upon which proceed like number of Geometrical progressions.

I again and now appeal to the Government of Canada, and inquire whether or not upon two conditions:

1st. Opening the St. Lawrence and making it free to the commercial world.

2ndly. Making and securing all the facilities that nature suggests. Said Government may not in effect prescribe as to the channel of the Commercial intercourse between the Countries referred to. Further, but looking at the alternative, can the Government expect to get a revenue from the existing improvements of the St. Lawrence, depending only and alone upon the business of Canada, commercially isolated and distinct, sufficient to pay the interest of the cost of said works, together with the annual expenses of supervision and maintenance.

The furnishing of the Lumber Trade of Canada with a choice of markets as it would have, and that from Lake St. Lewis, the most favorable point for such choice to be available, the enterprise in question being carried out would be an event in its course that would tell powerfully to the advancement and welfare of the Country.

That the enterprise in question would have favorable influences in other commercial relations which would result to the advancement of the revenue upon the Public Works of Canada, and to the advance of the Commerce of Canada, cannot be doubted. Having presumed this much, I will leave further comment to others.

I have the honor to remain,
Gentlemen,
Your obedient and humble servent,

(Signed,) J. B. MILLS,
Civil Engineer.

Matilda, 19th February, 1848.

ESTIMATE.

		s.	d.	£	s.	d.	£	s.	d.
Section 1.—Lake Champlain Terminus, between the Steamboat Wharf and Jones' Bridge at St. Johns:—									
Embankment, "Cotter Dam"	11,120 cubic yds.	1	0	556	0	0			
Do on Piers	2,986 "	1	0	149	6	0			
Excavation	26,816 "	1	0	1340	16	0			
Timber in Cribs	57,820 cubic ft.	0	6	1445	10	0			
Protection Wall outside	1,440 cubic yds.	4	0	288	0	0	3779	12	0
Section 2.—From Jones' Bridge to head of Ste. Thérèse Island:—									
Excavation	265,917 cubic yds.	0	11	12187	17	3			
Embankment	118,352 "	0	11	5424	9	4			
Timber in Cribs	114,252 cubic ft.	0	6	2856	6	0			
Protection Wall outside	12,237 cubic yds.	4	0	2447	8	0			
Do do	16,453 "	2	0	1645	6	0	24561	6	7
Section 3.—Ste. Thérèse Island—Improving Tow-path	....	....		....			380	0	0
Section 4.—From Ste. Thérèse Island to ⊙ 76, or point of leaving the Chambly Canal:—									
Excavation, Earth	380,850 cubic yds.	0	9½	15075	6	3			
Do Rock....................	7,036 "	4	0	1407	4	0			
Embankment	30,448 "	0	10	1268	13	4			
Excavation, extra haul, Earth..........	47,950 "	0	4½	899	1	3			
Timber in Cribs	50,310 cubic ft.	0	6	1257	15	0			
Protection Walls outside	2,400 cubic yds.	2	0	240	0	0	20147	19	10
Section 5.—From Chambly Canal ⊙ 116½, Raymond:—									
Excavation	385,312 cubic yds.	0	9	14449	4	0			
Embankment........................	7,990 "	0	9	299	12	6	14748	16	6
Section 6.—From Raymond's to ⊙ 208, River St. Philip:—									
Excavation	1,198,143 cub. yds.	0	8	39964	15	4			
Embankment	85,740 "	0	9	3215	5	0	43180	0	4
Section 7.—River St. Phillipe to ⊙ 266, Dunn's Mills:—									
Excavation	827,048 cubic yds.	0	9½	32737	6	4			
Embankment	196,674 "	0	9	7375	5	6	40112	11	10
Section 8.—From Dunn's Mills through Indian Woods to ⊙ 299:—									
Excavation	349,942 cubic yds	0	11	16039	0	2	16039	0	2
Section 9.—From Station 299 to River St. Lawrence:—									
Excavation, Earth	49,569 cubic yds.	0	11	2271	18	3			
Do Rock....................	50,379 "	4	0	10075	16	0			
Embankment	96,107 "	0	11	4404	18	1			
Coffer Dam, do	....	....		400	0	0	17152	12	4
Clearing........................	360 acres.	80	0	1440	0	0			
Grubbing........................	240 "	326	0	3840	0	0	5280	0	0
Mucking........................	56,320 cubic yds.	0	9	2112	0	0	2112	0	0
Ditching	105,600 "	0	8	3520	0	0	3520	0	0

ESTIMATE.—(*Continued.*)

		s.	d.	£	s.	d.	£	s.	d.
Caughnawaga Pier:—									
Timber	235,200 cubic ft.	0	5	4900	0	0			
Stone filling	22,400 cubic yds.	2	0	2240	0	0			
Planking on Piers	30,000 ft. B. M.	50	0	75	0	0			
On account of Pier Head				250	0	0	7465	0	0
Slope Walling	126,720 cubic yds.	5	0	31680	0	0			
Do do	31,680 "	7	6	11880	0	0	43560	0	0
Locks:—									
No. 1, Guard Lock, including Gates				9750	0	0			
No. 2, including Gates and Waste-weir Wing				13300	0	0			
No. 3, do do do				14500	0	0			
No. 4, St. Lawrence Lock, do				16200	0	0	53750	0	0
Aqueducts, "Stone":—									
River La Petit, Montreal				12003	0	11½			
River La Tortue				12003	0	11½	24006	1	11
Aqueducts, "Wooden Trunks":—									
River St. Phillipe				2500	16	9¾			
River St. Pierre				2500	16	9¾			
River St. Regis				2500	16	9¾	7502	10	5¼
Culverts, 8 feet span	3			3824	11	11			
Do 6 feet span	4			4233	9	5			
Do 4 feet span	8			2406	18	0			
Do 3 feet span	10			6523	2	8¼	16988	2	0¼
Waste Weirs	2			1202	11	1	1202	11	1
Bridges	11			11319	18	9			
Do	1			1379	1	3	12698	15	0
Lock Houses	6	£180		1080	0	0	1080	0	0
Bridge Houses	10	£150		1500	0	0	1500	0	0
Warehouses	2	60		120	0	0	120	0	0
Wharfing:—									
Timber	89,424 cubic ft.	0	6	2235	12	0			
Plank	57,960 ft. B. M.	50	0	144	18	0			
Earth filling	6,048 cubic yds.	1	0	302	8	0	2682	18	0
Fencing	11,334 Rods	6	3	3545	0	0	3545	0	0
Land Monuments							150	0	0
Damages—Land taken				12150	0	0			
Incidental				7850	0	0	20000	0	0
Dredging at Isle-aux-Noix							3437	10	0
Superintendence							12500	0	0
							£403202	8	0¼
Add 12½ per cent							50400	0	0
Total							£453602	8	0¼

No. 13.

REPORT OF W. H. SWIFT, ESQ., ON THE ST. LAWRENCE AND LAKE CHAMPLAIN CANAL.

Boston, 6th June, 1855.

To the Honorable
The Commissioners of Public Works
for the Province of Canada.

On the 12th April last I had the honor to receive a communication from the Department of Public Works, transmitting for my examination certain reports and maps which had been made by various persons and at various times in relation to a Canal between the River St. Lawrence and Lake Champlain, and asking for my opinion and advice thereon.

Referring to my reply to that communication, to the subsequent want of the Board of Public Works, to my proposition for the cause of the delay which has taken place on my part in preparing the opinion asked for, I now proceed to comply with the request of the Honorable the Commissioners, and to submit to them the result of my reflections upon the subject of the proposed line of communication.

The papers which were placed in my hands for examination, were the following:

1st. Report of John B. Mills, C. E., to the Commissioners of Public Works, Feb. 19, 1848.

2nd. Instructions of the Commissioners to John B. Jervis, C. E., August 12, 1854.

3rd. Report of J. B. Jervis, C. E., to the Commissioners of Public Works, Feb. 13, 1855.

4th. Report of E. B. Tracy to John B. Jervis, dated Feb. 13, 1855.

5th. Report of S. Gamble to the Commissioners of Public Works, April 10, 1855.

6th. Two general maps exhibiting the several proposed lines of communication, one illustrating the lines examined by Mr. Mills, in plan and in profile, the other, the lines reported upon by Mr. Jervis.

The first line examined for the proposed communication appears to be that by Mr. Mills, viz., from the Town of St. John's on the Richelieu River, by the course of that River and the Chambly Canal some 9 miles northerly, thence westerly to the St. Lawrence River at Lake St. Louis, near the Village of Caughnawaga, the entire distance being thirty-two and a half miles, and the lockage twenty-nine feet.

Mr. Mills also examined a more direct line than the above, but the intervening summit being some fifty feet above the level of Lake Champlain, the line was considered by him impracticable and abandoned.

Mr. Jervis' examinations appear to have been more extensive, embracing several distinct lines, to wit:

1st. From St. John's to Caughnawaga by a line traced at the level of Lake Champlain thirty-four and a half miles long, with 2 lift locks and one guard lock, say same quantity of lockage as Mr. Mills' line twenty-nine feet.

2nd. Between the same two points St. John's and Caughnawaga but by a more direct line elevated thirty-seven and a half feet above the level of Lake Champlain and drawing its supply of water from the St. Lawrence through the Beauharnois Canal, and a feeder from the same of sixteen miles in length introduced upon the summit level at a point twenty-one and a half miles from St. Johns and four miles from Caughnawaga, with three locks of twelve and a half feet each descending into Lake Champlain, and five locks of twelve and a half feet each descending into the St. Lawrence, say twenty-five and a half miles of Canal proper with one hundred feet of Lockage and sixteen miles of Feeder.

3rd. From a point on the first named line, Champlain level line, seventeen miles from St. John's to the south shore of the St. Lawrence, at Longueuil, opposite Montreal, twenty-eight miles.

4th. Making the Feeder from the Beauharnois Canal, sixteen miles being navigable, and omitting the four miles between the Feeder junction and Caughnawaga there would be a line of forty-one and a half miles, as between the Beauharnois Canal at a point two and a half miles from its Eastern terminus and St. John's with a descent of thirty-seven and a half feet to Lake Champlain level at that place.

5th. From St. John's to Sorel, at the mouth of the Richelieu River, fifty-eight miles, by enlarging and improving the Chambly Canal twelve miles in length, with one guard lock and eight lift-locks, also one lift-lock of six feet at St. Ours, say in all seventy-eight feet of lockage.

ESTIMATES OF THE COST.

Omitting the Longueuil and the Sorel lines.

The estimated cost of Mr. Mills' single line, and of Mr. Jervis' several lines, as presented by them respectively, is as following:

Mr. Mills' line thirty-two and a half miles long with twenty-nine feet of lockage, distributed through three lift locks and one guard lock..	$1,8 4
Mr. Jervis' line traced at the level of Lake Champlain, thirty-four and a half miles long, with, say twenty-nine feet of lockage, distributed through two lift locks and one guard lock............	$3,706,231.
Mr. Jervis' direct line from St. John's to Caughnawaga drawing its supply of water from the St. Lawrence through the Beauharnois Canal by a feeder sixteen miles long, but not navigable, say twenty-five and a half miles Canal proper and one hundred feet lockage, with sixteen miles feeder......................	$3,287,240
The same line as the last but with the feeder made navigable........	$4,267,890.
Mr. Jervis' Beauharnois line, say from the Beauharnois Canal at a point two and a half miles from its Eastern terminus to St. John's, omitting the four miles between the feeder junction and Caughnawaga, say thirty-seven and a half miles, and three lift locks of twelve and a half feet each, descending into the River Richelieu at St. John's..	$3,369,400.

Mr. Mills' estimates of cost are for a Canal eighty feet wide at bottom, ten feet deep, slopes two to one or one hundred and twenty feet at surface of water, with locks two hundred feet long and forty-five feet wide.

Mr. Jervis' estimates are for a Canal eighty feet wide at bottom, eleven deep, slopes of banks two to one or one hundred and twenty-nine feet at surfac with locks two hundred and thirty feet long and thirty-six feet wide.

Summary of the Estimates.

Mr. Mills' line	....	$1,814,408
Mr. Jervis (Champlain level)	....	3,706,231
Do.	Direct line with feeder not navigable........	3,287,240
Do.	do. do. feeder navigable.............	4,267,890
Do.	Beauharnois line without bracket to Caughnawaga.	3,369,400

Mr. Jervis remarks thus: "The Caughnawaga direct route with Beauharnois "feeder made navigable is clearly the route that will most fully provide for all the "great sources of the trade it is important to accommodate by the projected Canal."

Further he adds: "I have no hesitation in recommending the Caughnawaga "direct route with the Beauharnois junction, as adapted to fulfil, in the most "eminent degree, all the great objects of trade which are to be either secured or "promoted by the work.

Thus it will be seen that while Mr. Mills recommends a line traced at the level of Lake Champlain, thirty-two and a half miles long, with say twenty-nine feet lockage, distributed through three lift locks and one guard lock, with the supply of water for the summit level drawn from Lake Champlain, and the whole costing, by his estimate, $1,814,408, Mr. Jervis recommends a line having the same termini (Saint John's and Caughnawaga), but more direct in its course, say twenty-five and a half miles of Canal proper, with one hundred feet of lockage distributed through eight lift locks with a navigable feeder sixteen miles long, through which the supply of water is to be drawn from the summit level from the River Saint Lawrence, the whole costing, by his estimate, $4,267,890.

Thus it will also be seen that Mr. Mills and Mr. Jervis agree in opinion as to the proper termini of the Canal, to wit: Saint John's on the Richelieu River and Caughnawaga on the River Saint Lawrence, but they differ in opinion as to the route and as to the mode of supplying the Canal with water.

Mr. Mills proposes to draw the supply of water from the summit level from Lake Champlain, and to construct Locks of the same capacity as those now in use upon all the Canals already built on the Saint Lawrence River, say two hundred feet long and forty-five feet wide.

Mr. Jervis, on the other hand, proposes to draw the supply of water for the summit level of his line from the Saint Lawrence River, through the Beauharnais Canal and a feeder sixteen miles long, using Locks two hundred and thirty feet long and thirty-six feet wide, or nine feet less in width than those of the Saint Lawrence Canals already in use.

The principal objects sought to be secured on the part of the Province by the proposed Canal, I suppose to be these.

1st. To open a line of navigation between the River Saint Lawrence and the markets on the Atlantic coast of the United States, by which not only the products of Canada can compete successfully in those markets with the products of the Western States, but that the Canadian system of Canals between the Upper Lakes and on the St. Lawrence River may also compete for the carrying trade.

2nd. That the proposed line of navigation will be made available, as far as circumstances will admit, to the inhabitants of the Lower or Eastern portion of the Province as well as to those of the Upper or Western portion.

3rd. That in providing this additional line of communication there shall be no further interference with the artificial works already completed, by diminishing their capacity, unless some decided advantage in some other form be secured as a compensation for such detriment if produced.

4th. That it is desirable in the construction of new works, designed to extend existing lines of communication, that in the general plan, dimensions of Locks and Aqueduct, &c., there shall be quite as great capacity given to the Locks, &c., as is now possessed by the older works, in order that boats which can pass through the St. Lawrence Canals, for example, may be able to navigate the proposed Champlain Canal.

Regarding these four points to constitute the essential objects which it is the wish of the Provincial Government to secure by the construction of the proposed line of communication, I shall assume that the following conditions and considerations should govern in the selection of the route which should be adopted.

1st. That the supply of water be ample to accommodate the trade at all times.

2nd. That the shortest line, with the least amount of lockage practicable, is to be secured, having regard to a proper economy in the cost of construction of the line to be selected.

3rd. That the wants of the two divisions of the Province are to be considered and accommodated as far as the same may be done consistent with the great main object.

4th. That there should be given to the proposed new works all the capacity to accommodate the trade now possessed by the older or existing works.

5th. That there should be no interference with the present artificial works of the St. Lawrence, unless it can be shewn to be advantageous or unavoidable.

With these conditions promised, I proceed to discuss, quite briefly, the advantages and disadvantages of the two lines, and to which, it appears to me, the choice or selection of a route for the proposed Canal will be confined, for it would seem that the route via Longueuil, a point between the outlet of the Lachine Canal, could not be considered a proper one for the larger or Western traffic. The interests of Montreal are of sufficient importance, doubtless, to be consulted in deciding upon the best line of communication between the St. Lawrence and Lake Champlain, at the same time it appears to me to be obvious that it would not be expedient to compel vessels engaged in the Western trade to pass the Lachine Canal in either direction, up or down, and such must be the effect if the Western terminus of the proposed line of Canal be fixed below Lake Saint Louis.

I shall, therefore, confine the remarks which I may have to make to the line called the Champlain Level Line, substantially the same which was traced by Mr. Mills, and by him recommended for construction, and the line selected and recommended for construction by Mr. Jervis, called his direct line, with navigable feeder from the Beauharnois Canal.

What are the works which Mr. Mills proposes to construct to open a line of communication between Saint John's and Caughnawaga, or say between Lake Champlain and the River Saint Lawrence?

1st. A line of Canal thirty-two and a half miles long.

2nd. Three lift locks and one guard lock.

3rd. Twenty-nine feet of lockage.

Mr. Jervis proposes to construct the following works to accomplish the same principal object, with save additional advantages as claimed by him:

1st. A line of Canal proper, twenty-five and a half miles long.

2nd. Eight lift locks.

3rd. One hundred feet of lockage.

4th. A navigable feeder from the Beauharnois Canal to the summit-level of the main line, sixteen miles long, taken out of the said Canal two miles and a half above its Western terminus, and six Locks, or sixty-two feet and a half above the River Saint Lawrence at Caughnawaga.

Now, if, with Mr. Jervis, we consider that "One Lock is rather more than equivalent to one mile of Canal in the expense of time of navigation." we should arrive at the following result in comparing Mr. Jervis' line with Mr. Mills' line as to the expense of time:

For Mr. Mills' Line.

Canals	Miles	32.5
Four Locks equivalent to		4
Total		36.5

For Mr. Jervis' Line.

Canal, proper	Miles	25.5
Eight locks		8
Navigable Feeder		16
Total		49.5

Mr. Jervis' line leaves the Beauharnois Canal at a point two and a half miles West of the Eastern terminus, and sixty-two and a half feet, or six Locks, above the level of the Saint Lawrence at Caughnawaga, and enters the main line four miles East of the last named place therefrom, and far as the Western trade is concerned, the comparison would stand thus:

Mr. Mills' line, as above	Miles	36.5
Add two and a half miles Beauharnois Canal		2.5
Add six Locks of Beauharnois Canal		6
Total		45.0
Mr. Jervis' line	Miles	
Navigable Feeder		16
Main Canal to St. John's		21.5
Three Locks descending to Lake Champlain		3
Total		40.5

But this saving of distance and Lockage, combined, is effected by substituting artificial navigation, constructed at great cost, for the fine natural channel of the Saint Lawrence, through the entire length of Lake Saint Louis.

In the case of the Eastern trade, the Northern (Ottawa,) the comparison would be,

For Mr. Mills' line	Miles	36.5
For Mr. Jervis' line		33.5
Difference of miles		3.0

On the saving to the Western trade would be four and a half miles, and to the Eastern and Northern it would be three miles.

The next question to be considered is the cost at which this saving of four and a half miles and three miles, in time, is to be effected.

In making a comparison of the results arrived at by Mr. Mills and Mr. Jervis, one cannot fail to be impressed with the enormous difference in the amount of the two estimates of the cost of effecting the same main objects, to wit: a Canal to connect the Saint Lawrence River and Lake Champlain, the two lines having substantially the same termini.

Mr. Mills' line	$1,814,408
Mr. Jervis' line	4,269,890
Difference	$2,453,482

While it is probable that Mr. Mills prices for work are short, his estimates having been made many years since (1848) when labour and materials of all kinds cost very much less than now; still in one important item, Lockage, his estimates of cost are quite liberal; for example, he has placed the aggregate cost of three Lift-locks at £44,000 currency, average £14,666, upwards of $6000 per foot lift, and this for Locks 200 x 45. Mr. Jervis' estimate for Locks, 230 x 36, is stated at $5000 per foot lift, for earth. Mr. Mills estimates fifteen to twenty cents per cubic yard, Mr. Jervis twenty to twenty-five cents; rock by Mr. Mills is placed at eighty cents, by Mr. Jervis at one hundred and twenty-five, &c.

Upon enquiry made at the Department of Public Works as to the average cost of the Saint Lawrence Locks, 200 x 45, same as Mr Mills, I was informed that Lock Six of the Beauharnois Canal, ten feet lift, was £11,662 17s. 5d., and that the Locks might be deemed to be a fair average of the cost of such work in Canada.

Considering that Mr. Mills' estimate, in general, will bear an increase for the reasons stated, also that they may afford a fair comparison with the estimates of Mr. Jervis, still I am not prepared to say that I think the estimates of the last named gentleman can safely be diminished, for he has had great experience in the construction of Canals and Railways, and I prefer to let his figures stand as he has submitted them.

To be entirely safe, I shall assume that Mr. Mills is fifteen per cent. short in his entire estimate, or, instead of $1,814,408, I shall say,

Mr. Mills estimate	$2,086,569
Mr. Jervis' estimate	4,269,890
Difference	$2,181,321

Now if I were to concede to the line of Mr. Jervis all the advantages which he claims for it, and were asked if I considered it worth upwards of $2,000,000 more than the line of Mr. Mills, I should answer without hesitation in the negative.

But I do not concede to Mr. Jervis' line the advantages which he claims for it, on the contrary, I consider it in many respects very objectionable, and I proceed to state that I conceive the objectionable features to consist in.

First, A canal of the first class has already been constructed by the Province at great cost to reach the level of Lake St. Louis from above—a level which both Mr. Jervis and Mr. Mills have selected as the proper terminus for the Champlain Canal, on the River St. Lawrence; they agree also, in opinion, that one particular point, Caughnawaga, is the proper outlet for the Canal?

Now, between Caughnawaga and the point on the Beauharnois Canal, at which Mr. Jervis proposes to take out water for the navigable feeder which is to supply the summit level and the lockage for the Champlain Canal, is some 20 miles, or more, of which, with the exception of the 2½ miles of the eastern and of the Beauharnois Canal, there is provided by Nature that fine reach of the St. Lawrence River, called Lake St. Louis.

Why substitute for this natural channel already provided, an artificial canal?

Between the point on the Beauharnois Canal at which Mr. Jervis' feeder for the Champlain Canal is to be taken out, there are six locks of the aggregate lift of 62½ feet lying within the distance of less than 2½ miles. I am informed at this time that there is an insufficiency of water for the supply of the lockage, even for the present trade, the boats are brought across by a tug from the head of the Lachine Canal, from five to ten at a trip, and they are often delayed at the Beauharnois Canal for the want of lockage water to ascend to the Upper levels. This deficiency arises from the want of capacity in the Canal to furnish water at all times when it is wanted, 120 feet is the nominal width of the water at the surface, but I am told that there are points at which it is not more than 70 feet, and this with the small declivity which belongs to a grand canal destined for a trade in both directions, could not in my opinion, supply all the water required for itself with a brisk trade, unless enlarged; but what is to be expected of its capacity to supply the additional quantity which after co-operation and lockage upon the Champlain Canal, and its feeder would require, say for 41½ miles canal and 100 feet of lockage.

Such supply could not be furnished, in my opinion, without an extensive alteration in the present Beauharnois Canal. Not only would it be necessary to give it greater width, but a greater declivity than it now has.

To do this would involve a large expenditure which would form an additional item of some magnitude to the estimate of Mr. Jervis.

It is to be remembered that if the Beauharnois Canal is to become the channel of supply for the Champlain Canal in addition to its own demand, that lockage and evaporation is to be provided for 52 miles Canal and for 162 feet lockage, distributed through 9 locks on the Beauharnois Canal, and 8 locks on the Champlain Canal.

In Mr. Mills' line, the supply of water is without a question being obtained directly from Lake Champlain upon a summit level 20 miles or more long, and with but 29 feet of lockage to be provided between the Lake and the River St. Lawrence.

Second. It is not a correct principle in constructing works of artificial navigation to make one line dependent upon another line for a supply of water when such dependence can be avoided, for, by an accident to the works of one, the use of both may be lost.

Between the source of supply of water and the summit level of Mr. Jervis' line, there is 9 miles of the Beauharnois Canal, 3 locks, and 16 miles of navigable feeder, in other words, the use of the entire 41½ miles of the Champlain Canal and its feeder depends upon the condition of the Beauharnois Canal and an accident to any important part of that line, would, for the time prevent the use of the Champlain Canal.

In Mr. Mills' line there is no such dependence, its summit level is, in fact, Lake Champlain itself without an intermediate channel.

Third. As Mr. Jervis' line between St. John's and the Beauharnois Canal lies nearly east and west, it affords less facilities to the inhabitants of the Lower Provinces than the line proposed by Mr. Mills. By the last named line, some 9 miles of the 12 composing the present Chambly Canal would be enlarged and improved, and these 9 miles would at once be available to the lower as well as to the Upper Province, and by extending the enlargement of the Chambly 3 miles further north, I understand that in connexion with the lock at St. Ours 200 x 45 feet, a continuing line of river, and canal navigation would be secured between Sorel, mouth of Richelieu River and St. John's, some 60 miles in all. This being done, very important results would follow, for the Richelieu would be used for the transportation of all descriptions of commodities from the Lower Province, merchandise from Quebec, timber from the large sources of supply of that article on the St. Maurice River, and, in short, all descriptions of produce from Lower Canada destined for the markets in the United States under the provisions of the Reciprocity treaty.

Fourth. Mr. Jervis' line requires of main canal (or of navigable feeder) 9 miles more than the line of Mr. Mills, it also requires 4 more Locks, or 71 feet more lockage, and this of course, without diminishing the quantity of existing lockage of the Beauharnois Canal. The Locks there cannot be dispensed with.

Hence a perpetual charge for the maintenance and annual repairs of the additional 9 miles of canal, of 4 Locks and the compensation of four lock-keepers will form an amount properly chargeable to the line of Mr. Jervis beyond that which is chargeable to the line of Mr. Mills.

At the rate of 6 per cent., the additional annual charges, say of $1,500 per mile for 9 miles, including the Locks, and of $2,000 for the four lock-keepers, would require an equivalent capital added to the general investment of say $258,000.

Fifth. Some of the details of Mr. Jervis' plan for the canal, I also consider objectionable. The Locks now in use on the St. Lawrence and elsewhere in Canada, except the Welland, I understand to be 200 feet long and 45 feet wide, Mr. Jarvis proposes for the Champlain Canal Locks 230 feet long by 36 feet wide, and this for the reason that the propeller of the present size and shape is most common use on the Lakes will be the kind of vessel which will be most used hereafter: this may be so or not. I should prefer to retain the width of 45 feet for the Champlain Canal locks, even if it be considered expedient to make the length 230 feet, inasmuch as the cost of construction would be but slightly increased, that being in the ratio of the length and depth of the lock, rather than its width.

The expense of water should be of no importance, as it is to be supposed that an ample supply of that is to be secured and the difference in time required to pass the locks for the kind of navigation to be provided for is also immaterial.

Further, in a lock 45 feet wide, two or three sailing craft can be forced through a lock at the same time, and this, I suppose, may frequently be desirable.

Finally. It appears to me that this is one of the kind of questions which the cost alone should determine, even if there were less objectionable features in one of the lines than in my opinion are to be found there.

We have in one case a well situated line of canal, 32¼ miles long, with 4 locks upon it connecting Lake Champlain with the St. Lawrence River, the great object which we are seeking to accomplish. This line, we are told by the Engineer who surveyed and planned the canal, can be constructed for $1,814,000, but we say $2,086,000.

I cannot think that there are any considerations which would justify the adoption of the line recommended by Mr. Jervis, the difference in cost alone ($2,181,321), would in itself be a sufficient reason in my opinion for rejecting, it but in addition to this great sum of money there are other reasons which I have pointed out in the preceding pages to which I attach great importance, and I have no hesitation whatever in expressing the opinion that the proper line for the proposed canal is from St. John's to Caughnawaga to the route known as the Champlain level; in other words, that the canal should be supplied with water from Lake Champlain as recommended by Mr. Mills, and not from the River St. Lawrence, as recommended by Mr. Jervis.

Respectfully submitted,

(Signed,) W. H. SWIFT.

Boston, June 6th, 1855.

No. 14.

ST. LAWRENCE AND LAKE CHAMPLAIN SHIP CANAL.

ST. JOHN'S, CANADA EAST,
22nd January, 1856.

SIR,—It becomes my duty to submit to the Department the results of the investigations in which, in pursuance of instructions, I have been engaged with reference to the projected Ship Canal to connect the St. Lawrence with Lake Champlain.

The objects of this project were fully explained in the Public Works Report of 1851, as well as in the Hon. J. Chabot's letter of instructions to J. B. Jervis, Esq., Civil Engineer; by whom the measure was elaborately and ably discussed. And recently the whole bearings of the project in connexion with the enlargement of the Welland Canal, have been placed in the clearest light in the Hon. John Young's letter to the Hon. F. Lemieux. It is therefore unnecessary to exhibit lengthened details to show the importance and magnitude of the branches of Trade, for participating in which, the St. Lawrence and Lake Champlain Ship Canal would beyond all question afford valuable facilities to Canada.

A very brief reference will first be made to the scope of the proposed measure and the surveys. Details will then be submitted to show that the Caughnawaga Champlain level line should be adopted, instead of the Caughnawaga direct line with navigable feeder, the route recommended by Mr. Jervis, inasmuch as there would be effected a saving of £510,000 in one view, and of £210,000 in a narrower view, with other advantages, as stated in my report of the 10th April, 1855. Next will be given the results of the exploration for a direct water line to connect Lake St. Francis and Lake Champlain. And lastly I will lay before the Department further details with reference to the location of the Champlain level line and furnish an approximate estimate.

Mr. McAlpine's invaluable reports on the Canals of New York furnish most comprehensive and valuable statistics as to the Trade of the Great West and the channels of commerce.

The region whose commerce Mr. McAlpine shews must almost entirely flow through the Lakes, is of great fertility, and upwards of six times the extent of the entire surface of Great Britain; comprising nearly two hundred millions of acres East of the Missouri, and one hundred and fifty millions west thereof; and though not more than one-eighth of the former was occupied by settlement, as stated by Mr. Jervis, yet, " it furnished in 1853 an eastern bound tonnage to the Erie Canal of " 1,213,690 tons, and a western bound tonnage of 261,752." The aggregate trade carried on upon the great Lakes is estimated in Mr. Andrews' report as having reached in 1851 to 81,200,000 tons.

It is plainly impossible to assign a limit to the commerce ultimately derivable from the Lake region when its resources shall have been developed.

The overflowing of the Lake trade would naturally seek an outlet by the St. Lawrence to Montreal and Quebec; whereas, on the contrary, that trade has been directed to the route by the Erie Canal to the Hudson River, in consequence principally (1) of the local demand for the products of the West, for home consumption in New York and the Eastern States of the Union, and (2) of the freights from New York to Europe having been much lower than those from Quebec. Frequently the freight from New York has been less than half of that from Quebec, but for the last three years the difference has not been so great.

The chief object under these circumstances of the proposed Canal, are, (1) To secure for the Canada route the trade between the West on the one hand and on the other Lake Champlain and the adjoining States, together with Boston and other populous districts which are linked to Lake Champlain by Railroad lines ; (2) To enable Canada to participate in the Western trade between the Great Lakes and the Hudson River, and thereby not only to afford a wider field for mercantile enterprize to Canada, but also to bring additional revenue to the St. Lawrence Canals. (3) To enhance the value of lumber by cheapening the cost of transport to the States. (4) To improve the navigation from Three Rivers, Quebec and the Lower St. Lawrence to Lake Champlain.

A careful examination of the details furnished by Mr. Jarvis will prove that it is practicable to secure all these objects, by connecting in an adequate manner the St. Lawrence with Lake Champlain, it being taken for granted that the Welland Canal will be converted into a Ship Canal. Mr. Jervis shows that the proposed Canal to Lake Champlain would very much increase, and enjoy particularly a monopoly of the Trade between the Western Lakes and Lake Champlain, and under the most unfavorable view with the New York Champlain Canal unimproved, would probably carry one-eighth of the tonnage between the West and Hudson River, one-third of that tonnage if the N. Y. Champlain Canal were enlarged to the size of the enlarged Erie Canal—and one half of the tonnage if the N. Y. Champlain Canal were made a Ship Canal, and Hudson River deepened for twenty miles below Troy, by which improvement a Steamer of 700 tons burthen, having conveyed her cargo from the Lakes through Canada to Lake Champlain, could continue her voyage to New York.

It can be readily proved that the data on which the comparisons are based, are by no means too favorable to the Canada route, but much the contrary ; this, however, only strengthens the conclusion arrived at, that the proposed canal would secure to the Canada route a proportion of the carrying trade from the west.

One important result must necessarily follow from attracting this trade through Canada, the influence of which as stimulating the commerce of Quebec, Montreal, and the St. Lawrence, it appears difficult to over-estimate. It will be readily conceded that by far the greater part of the trade to and from the west by the proposed canal, would be eastern bound ; and that more than half the propellers would at first have to return without cargoes to their ports upon Lakes Ontario, Erie, Huron, Michigan and Superior, the necessary effect would be to reduce to a very low limit western bound or upward freights through the St. Lawrence from Quebec and Montreal to every port on the Great Lakes where agricultural produce can be shipped for the eastern and Atlantic markets. Between Quebec and Lake Erie there are but 68¼ miles of canal, and at half a cent. per ton per mile (Mr. Jervis' estimate for toll,) the aggregate toll would be nearly 1s. 9d. per ton, which at the same rate the tolls between the Hudson and Lake Erie would, by Oswego, amount to say 6s. per ton, and by Buffalo to 9s. At present the tolls by these routes are higher; the Welland Canal does not permit the passage of large propellers, and there is not sufficiently steady down freight to ensure the certainty of competition for the up freight.

But if the proposed canal were made, and the Welland Canal enlarged, a propeller could discharge at any point on Lake Champlain and proceed to Quebec or Montreal for freight, which could be conveyed for 1700 miles westward at a very small cost. Under such circumstances the goods would be subject to no damage by transhipment, a speed of say eight miles an hour would leave little to be desired in regard to expedition, and the time of arrival at the western port could be calculated with all desirable precision; while the opening of the Grand Trunk Railway would offer an independent route should the early setting in of frost, or other exceptional circumstances, reuder recourse to that desirable.

The enterprise of Quebec and Montreal would no doubt take advantage of these facilities, and provide cargoes to supply the wants of the west. The importation of goods for this purpose would tend to lessen outward freights from Quebec, which city would thus be ultimately enabled to take a large share in forwarding western produce to Europe, which at present the high outward freights from Quebec forbid.

The first line laid out for the St. Lawrence and Champlain Canal, with a view of securing the advantages adverted to, was by J. B. Mills, Esq., C. E., in 1846, and in 1854 four routes were surveyed under the direction of J. B. Jervis, Esq., C. E., to meet different propositions; one of these lines, the Caughnawaga Champlain level route, being substantially the same as Mr. Mill's, the chief difference being that the former was carried about two miles farther up Lake St. Louis, in order to obtain a better entrance into the Lake.

These various routes have been marked on the accompanying diagram map, and the details thereof are furnished at length in Mr. Jervis' Report.

Mr. Jervis shews from general considerations that neither the Sorel route, the Longueuil route, nor the Beauharnois route, would by itself afford reasonable accommodation to all the interests involved; and finally recommends the adoption of the Caughnawaga direct line, with navigable feeder, in preference to the Lake Champlain level line, and chiefly because by routes table No. 5 in his report, it appears that the latter "is about 12 per cent. less favorable for the trade that collects "in Lake St. Louis, and near 16 per cent. less favorable for the western trade that "seeks the Hudson."

In my report of the 10th of April, 1855, it was shown that routes table No. 5, was throughout incorrect in arithmetic, and also unsatisfactory in principle, when intended to furnish an index of the merits of the several routes in regard to cost of transportation and tolls. By correcting the arithmetic, the per centage of advantage of Mr. Jervis' line over the Lake Champlain level line for the western trade, would be reduced from 16 to 9 per cent, and this would apply only to the amount of freight and tolls (80 per cent. per ton,) betweeen points common to both routes, the one point at St. John's on the Richelieu, and the other at the sixth lock on the Beauharnois Canal, 2½ miles above the foot of that canal. The above resulting per centage, however, is of no value for the comparison of the routes; inasmuch as routes table No. 5, is based on the principle that tolls are to be charged by the mile, which would necessarily subject the longer line to the heavier toll; whereas on the contrary, when the cost of the longer is less than that of the shorter line, the Province can afford, with equal advantage to the revenue, to make the tolls less on the longer line than on the shorter one; and the difference may be such (and is so in the present case) as to compensate the trade for the greater length of navigation on the longer line. [See Note A.]

The line recommended by Mr. Jarvis, the Caughnawaga direct line with navigable feeder, has, it will be seen from the map, its Eastern terminus at St. John's, and has two Western termini, the one at Caughnawaga and the other at the Beauharnois Canal; the course of this line is wholly independent of the existing Chambly Canal, with which the Lake Champlain line coincides for nine and a half miles below St. John's.

The Chambly Canal, in connection with St. Ours lock and the Richelieu, conveys to Lake Champlain, besides other traffic, the trade from Sorel, Quebec and the Lower St. Lawrence, including the rapidly increasing lumber trade of Three Rivers, in which district very extensive lumbering establishments have been recently erected, and an almost unlimited supply of timber can be obtained. The Chambly Canal has, for want of repairs, been allowed to get into an unsafe state pending the decision as to the proposed Ship Canal, and whatever route is adopted, one of three courses must be taken with regard to the Chambly Canal.

1. This Canal and St. Ours lock may be converted into a Ship Canal, and the navigation thereby opened on the enlarged scale from Lake Champlain to the St. Lawrence at Sorel; or (2.) The Chambly Canal may be put into a state of thorough repair without enlargement; or (3.) It may be abandoned altogether if Mr. Jarvis' line be adopted and the trade from Sorel obliged to ascend the St. Lawrence and the Lachine Canal, cross over Lake St. Louis to Caughnawaga, and again ascend sixty-two and a half feet to the summit level of the Caughnawaga direct line, and then descend thirty-seven and a half feet to the level of Lake Champlain at St. John's; instead of taking the more direct and facile course up the Richelieu and Chambly Canal, on which route there are but twelve miles of Canal and seventy-eight feet of lockage, while by the Montreal route there would be thirty-three miles of Canal with 145 feet of lockage, and the River navigation would be somewhat longer and have very objectionable currents to overcome. The abandonment of the Chambly Canal is therefore not likely to be entertained; and the maintenance thereof on its present scale would entail a large expenditure and still leave the trade of the Eastern St. Lawrence below Montreal at a disadvantage, as the smaller scale of these twelve miles of Canal and less depth of water above St. Ours lock limit the size of vessels, and therefore increase the cost of transport on 300 miles of navigation between Quebec and Whitehall; besides it is confidently expected that the anticipated trade between the West and Lake Champlain will be carried on in propellers of at least 700 tons burthen, and it is desirable on general grounds, that the connecting water lines should have adequate capacity to pass such vessels; else, as in the present case, one class of vessels should be made for Chambly Canal trade and another for Eastern trade; and though opportunity offered, neither class of vessels could participate in the trade carried on by the other, unless at a disadvantage. This would clearly tend to the discouragement of the trade through the Chambly Canal, if not enlarged.

The propeller from the West having discharged at some point in Lake Champlain and expecting a return cargo at Quebec, the route to that port through the Chambly Canal would be less than through the Caughnawaga direct line, if constructed, by a distance and lockage equivalent to upwards of fifty miles of river navigation; so that under the circumstances anticipated, the enlargement of the Chambly Canal would tend, so far, to decrease the cost of transportation between Quebec and Montreal, regarded as forming a portion of the voyage to the West. And, lastly on this subject, it would be a convenience, if any obstruction occurred on the Lachine Canal, for steamers to pass from Lake St. Louis to Quebec by way of Caughnawaga and the Chambly Canal. It is, therefore, clearly of some moment to make provision if possible for the conversion of the Chambly Canal into a Ship Canal, and this was evidently contemplated when the St. Ours lock was made the same length and breadth as the locks on the St. Lawrence Canals, nor is it sound argument against making provision for the enlargement, that the present trade on the Canal is inconsiderable, the sources of that trade are only in course of development, the Reciprocity Treaty will influence it more than that of any other locality, and one professed object of the measure under consideration is to stimulate that trade, as it undoubtedly would.

The question of the enlargement of the Chambly Canal has been thus fully discussed because it has an important bearing on the location of the main line westward. The estimate for the line Mr. Jervis recommends, (the C. direct line with a feeder) is £1,166,972, to which should be added in order to make the comparison of cost complete £70,000, in order to provide a supply of water for the navigable feeder and for the capitalized value of extra lock tendance, and the periodical renewal of extra lock gates and the wooden trunk aqueducts over the St. Louis and Chateauguay Rivers. The total cost of Mr. Jervis's project may therefore be taken in this comparison, as £1,136,972. The estimate for the enlargement of the Chambly Canal and St. Ours Lock is £504,020, and the aggregate amount for both these projects would be £1,631,367, after deducting £9,625 for dredging and per centage common to both estimates. [See Note C.]

On the other hand the estimate for the L. Champlain level is £926,558; this route coincides with the Chambly Canal for 9½ miles from St. John's, and both routes, the one for the western trade to Caughnawaga, and the other to Sorel for the eastern trade, could be constructed for £1,120,578, being less in round numbers by £510,000, than the former aggregate, and less by £16,000 than the cost of the C. direct line with navigable feeder alone.

In the narrower view of the Sorel route, not being completed on the enlarged scale, there would be in comparison of the projects by adopting the C. Champlain level line instead of Mr. Jervis' line a saving of £210,000, with the advantage of having the worst part of the Chambly Canal improved and enlarged to the extent of 9½ miles of Canal out of the entire length of twelve miles, and at any time the Sorel route could be completed for £194,000, or probably less.

To be weighed against these advantages is the extra freight to which the western trade would be subjected by the excess in length and lockage of the C. Champlain level route over the navigable feeder. If the guard lock be taken as equivalent to seven miles of Canal, it will appear from Mr. Jervis' route tables that the excess is fourteen miles of lake navigation, and five lift locks, which are together equivalent in cost of transportation independent of tolls to about twenty-four miles of lake navigation, twelve miles of Ship Canal, three miles of Railroad, one-third of a mile of Turnpike Road.

In this comparison one mile of Canal has been considered as equal in cost of transportation, independent of tolls, to one lift lock, and also to two miles of lake navigation, in accordance with Mr. Jervis' proposition.

A barrel of flour can be conveyed from Chicago to Buffalo, 1100 miles, for from twenty to thirty cents, say, at the average price of twenty-five cents, which is equivalent to half a cent per barrel for twenty-two miles. Taking into consideration that the proposed canal would form a portion of a long voyage, and the certainty of there being competition for freights with the Erie Canal, five cents per ton or half a cent per barrel on flour will be a sufficient allowance for the extra cost of transportation through the fourteen miles of lake navigation and five locks, which constitutes the difference between the C. Champlain level route and the navigable feeder route.

Even at the risk of repetition it is considered desirable now to give a summary of the principal points to be kept in view in comparing these routes with each other. Firstly, the saving by adopting the C. Champlain Level Line would be £510,000, if the enlargement of the entire Sorel route be considered necessary in conjunction with whichever route to the West is decided upon. Secondly, Without embracing in the comparison of estimates the cost of enlarging the Sorel route, the saving by adopting the C. Champlain Level would be £210,000, with the additional advantage of the improvement of nine and a half miles of the Chambly Canal out of the entire length of twelves mile of Canal on that route, which at any time could be completed on the enlarged scale for £194,000.

Thirdly, £510,000, at six per cent compound interest, would amount in nine years to £861,634, and £210,000, in twenty-four years to £850,276, while £842,350 is the entire estimate for the navigable feeder or Beauharnois route without the branch to Caughnawaga. Hence to construct the C. Champlain Level Line, and complete the Sorel route now, and at the end of nine years to construct the Beauharnois route, would not cost more than at present to construct Mr. Jarvis' Line and enlarge the Sorel route.

An analogous conclusion may be drawn in the case of the Sorel route not being enlarged.

Fourthly, Hence it is evident that the selection of route should not be altogether governed by the magnitude the western trade must ultimately attain.

Fifthly, The entire extra cost of navigation by the C. Champlain Level would be five cents or three pence per ton, or half a cent per barrel of flour on the trade from the west to Lake Champlain, and one and a half cents per ton, or say one-sixth of a cent per barrel on the trade from *Montreal*, the *Ottawa*, and *Lake St. Louis* to Lake Champlain.

Sixthly, Both routes would therefore practically offer equal facilities to the Lumber Trade, which is one of the most important interests to be benefited. The difference between the two routes from Caughnawaga to Lake Champlain is equivalent to four miles of Canal.

Seventhly, Half a cent per barrel on flour could not in the least interfere with the monopoly of the trade between Lake Champlain and the West, that the Canada route must virtually enjoy, and to secure this trade is another of the leading objects of this measure.

Eighthly, Oswego and Albany, connected by 209 miles of Erie Canal, are the points nearest to each other between which competition for the western and Hudson River Trade can take place on the part of the Canada route against the Erie Canal; and Mr. Jervis states and founds his calculations of Trade and Revenue on the fact, that between Buffalo and Albany connected by 363 miles of Erie Canal the freight on a barrel of flour varied in 1851 from 43 to 60 cents, in 1852 from 47 to 68 cents, in 1853, from 48 to 74 cents.

This variation would necessarily be reduced by competition, but it may be fairly inferred that the Canada route could not be sensibly prejudiced by the extra ½ cent per barrel, even though no allowance were made in toll for the saving in cost of construction.

Ninthly, The interest on £510,000 is £30,600 a year at 6 per cent, which would enable the Province without loss to the revenue to make on the Champlain level line, the tolls lower than if Mr. Jervis' line were adopted, by 5 cents per ton, or an annual tonnage of 2,448,000 tons.

And £12,600 a year, the interest on £210,000 is equivalent to 5 cents a ton on 1,008,000 tons, but in this case the saving does not represent fully the accruing advantages.

At pages 28 and 29 Mr. Jervis estimates "that by the time the improvements "are in full operation and their advantages fairly developed, the trade of the "Western Lakes would be annually 8,000,000 of tons, including that in both "directions" that is double of what that trade was in 1853, and on this basis he constructs his first, second, and third comparisons, and from the quantities there given, excluding the Lumber trade, but including the Lake Champlain trade, (although for this there could be no successful competition,) the annual tonnage on the proposed Canal is established at

770,000 tons if the New York Champlain Canal be not improved.
1,370,000 do if that Canal be enlarged as the enlarged Erie Canal.
1,820,000 do if that Canal be converted into a ship Canal, and Hudson
[See Note B.] River improved for twenty miles below Troy.

This trade Mr. Jervis anticipates will be eventually more than doubled at no very distant day.

Looking at the fact that the rival route, the Erie Canal, is at present being enlarged at great expense by the State of New York, it can scarcely be anticipated that the New York Champlain Canal will be enlarged for many years after the time, when it is hoped the St. Lawrence and Champlain Canal will be opened. And in drawing conclusions from the foregoing statement of annual tonnnage, extra freight, and saving of interest, it should be remembered that it is much more important to have a light burthen on the trade in its infancy than the advantage of a small prospective saving, when the trade shall have become fully developed. It is also obvious that the adoption of the less expensive project would render the measure more independent of the enlargement of the New York Champlain Canal.

Tenthly, Should the rapids on the St. Lawrence near the Beauharnois Canal be at any time improved so as to permit the safe passage of laden propellers of large size, the extra cost of the navigable feeder line if it be adopted, must be regarded as almost wholly thrown away. Messrs. Maillefert and Raasloff's estimate for the improvement of all the rapids from the head of the Lachine Canal to Prescott is £180,000.

Eleventhly,—And lastly, it would be an advantage to Montreal to ensure the passage of all the trade through Lake St. Louis, and thus to bring it near the head of the Lachine Canal, and give the merchants of Montreal the fullest opportunity of participating in that trade; but undoubtedly whatever route is best calculated to promote the success of the undertaking is the route that would be most advantageous to the interest of Montreal.

Under these circumstances, although fully alive to the importance of providing adequately for the vast Western trade, yet I had no hesitation in forming the opinion expressed in my report of the 10th April, that it is the interest of the Province to adopt the Caughnawaga Champlain level line instead of the Caughnawaga direct line with navigable feeder. [See Note E.]

The various reports on the measure under consideration were subsequently submitted to W. H. Swift, Esq., C. E., who strongly recommended the adoption of Mr. Mills' line, which as already stated is substantially the same route as the C. Champlain level line, although Mr. Jervis' estimate for the latter, made under different circumstances, is more than double Mr. Mill's estimate. And it is to be observed that Mr. Swift bases his calculations not on a comparison of Mr. Jervis' estimates for the two projects, but on a comparison of Mr. Jervis' estimate for the C. direct line with navigable feeder with Mr. Mills' estimate for the C. Champlain level line increased by a sum equivalent to nineteen per cent.

Further explorations in the field with reference to the proposed measure had been in meantime decided upon by the department; and a party of assistants were placed under my charge with instructions embracing with other matters two independent investigations.

First,—The exploration of the Country between Lakes St. Francis and Champlain to ascertain what facilities are there presented for making a direct line of canal to connect those waters.

Second,—And the examination of the district between St. John's and Caughnawaga to collect data for an approximate estimate, and to facilitate the location of the line between those points on the Champlain level in case that route should be decided upon.

First,—In order to afford full information as to what it was practicable to effect under every view of the measure, it was considered desirable to ascertain the course of the most direct water line that could be constructed from Lake St. Francis to Lake Champlain or some point on the Richelieu near to it.

The diagram map with the counter lines and lines of canal will assist in forming a general idea of the formation of the country, from the nature and extent of which the outdoor work has been necessarily heavy, comprising 147 miles of survey and levels.

Lake St. Francis is eighty-three feet above Lake St. Louis, and fifty-seven feet above Lake Champlain, which is twenty-six feet above Lake St. Louis.

From Lake St. Francis, eastward of Middle Point in Hungry Bay, with the exception of detached hills, the surface of the land scarcely rises above the level of the Lake, and at a short distance from it the ground gradually falls towards the St. Louis and Chateauguay Rivers, so that there has been hitherto apparently nothing to prevent the inundation of this rich tract of country by the flood waters of Lake St. Francis, except the soft black muck which covers the clay to the depth of from three to six feet.

On the other hand, westward from the Richelieu, the land rises irregularly until Napierville is eighty-nine feet above Lake Champlain, and thirty-two feet above Lake St. Francis; and further west, in the direction of Hungry Bay, the level rises considerably higher before the water turns its course to Norton Creek and the valley of the Chateauguay.

Again, taking a southerly course from Chambly Basin, which is seventy-three feet below Lake Champlain, we meet the Champlain level line, at which the ground is five feet below Lake Champlain; next the contour line, twenty feet above the Lake, then the C direct line, where the surface of land is thirty-three feet above the Lake, and lastly the contour line in green, which is sixty-nine feet above Lake Champlain and twelve feet above Lake St. Francis. From this to the Province Line the formation of the country is very irregular, but the valleys constantly tend upwards, and near Chateauguay Four Corners, four miles beyond the Province Line, the level is 1,000 feet above Lake Champlain. Further south the country rises still higher, until it forms the northern extremity of the Adirondack Mountains, which penetrate sixty miles into the State of New York, and near the southern extremity of which Hudson River takes its rise.

Under these circumstances, it was obvious that any water line to connect Lake St. Francis with Lake Champlain must be located considerably to the north of the Province Line. A cursory examination, made while the levels were in progress, shewed that the most southerly route that could at all be supposed worth examination, would be that from Middle Point in Hungry Bay by the valley of Norton Creek to Ash Island on the Richelieu, seventeen miles above St. John's; and this course presented but little promise of being practicable.

At Middle Point in Hungry Bay there is deep water close to the shore, with an unobjectionable course to the steamboat channel. The route from Middle Point to Ash Island by Norton Creek would be nearly direct, and the length of canal to connect the two waters forty-three miles.

Comparing this route for the Western trade to Lake Champlain with the route through the Beauharnois Canal and Mr. Jarvis' navigable feeder line, and calculating the distances between common points in Lake St. Francis and the Richelieu, there would be four miles of canal and twenty miles of lake navigation less by the line from Middle Point to Ash Island than by the Beauharnois route, and this difference represents a freight independent of tolls of six-tenths of a cent per barrel of flour. The lockage would be the same on each line.

The line from Middle Point by North Creek to Ash Island would accommodate only the western trade to Lake Champlain, and it would still remain to make provision for the Lumber trade of the Ottawa, the trade of Montreal, &c., &c. This could be effected in the cheapest manner, but at the same time very inadequately, by making a branch nineteen miles in length from Norton Creek to Caughnawaga; so that without paying any respect to the trade of Quebec, Three Rivers, &c., &c., the total length of new canal required would be sixty-two miles, which would cost £1,518,000, in case this route offered equal facilities for constructing a canal with those presented by Mr. Jervis' Beauharnois route. This, however, is not the case; but on the contrary, the levels now taken shew that on the line from Middle Point to Ash Island, if the Canal were fed from Lake St. Francis, there would be cutting to the depth of from twenty-three to forty feet and upwards for eighteen miles in length, a considerable portion of which consists of rocky hills and soft swamp. It would require a lengthened investigation to determine the ultimate cost of these eighteen miles: but under the most favorable view it would be necessary to add considerably more than £1,000,000 to the above estimate of £1,518,000, making the total cost upwards of £2,500,000; on the cost from Middle Point to Ash Island alone upwards of £2,000,000 at the lowest estimate, the amount of which shews that this plan is out of the question.

It has been suggested that a sufficient supply of water could be obtained from the Chateauguay, at the height requisite to command the summit level between Lake St. Francis and Lake Champlain, and thus avoid the deep cutting. With reference to this, it is submitted that—1st. The passage through the extra lockage, say three locks up and three down, would take away one-third of the advantage which this route would have over the Beauharnois route if the Canal were made on the level of Lake St. Francis. 2nd. The construction and maintenance of those locks, of twelve miles of feeder, and of the Canal through the eighteen miles referred to, would enhance the cost materially, even though the levels of the Canal were made to suit the levels of the ground by the extra lockage as near as this could be effected in that uneven country.

It was therefore obviously unnecessary to pursue the inquiry further, inasmuch as the Norton Creek route does not present a saving in the cost of transportation at all adequate to the difficulty and expense to be encountered.

It was not consequently deemed requisite to ascertain the minimum quantity of water that the Chateauguay would furnish in the dryest season, but from some observations made, it is inferred, that notwithstanding its apparent size this river could not, unaided by artificial reservoirs, be depended upon at its minimum flow to supply sufficient water for the proposed ship Canal with Lockages at least in two directions. The catchment or rain basin of the Chateauguay has for the most part precipitous slopes, from which after rain or thaw the water runs rapidly off, leaving but a small portion to filter slowly through the ground and supply the river during dry weather; so that the very cause which by creating rapid floods produces a deep and wide channel tends to reduce the minimum supply of water therein.

Looking at the magnitude of the ship Canal and of the trade it is designed to accommodate, and considering the essential advantage of having the certainty of a super-abundant supply of water under all possible circumstances, it would clearly be unwise in the district in question to render the St. Lawrence and Lake Champlain Ship Canal dependent on any other feeder than the St. Lawrence on the west or the Richelieu on the east.

If a water line were to be constructed from Middle Point on Lake St. Francis, it should in fact take the circuitous course indicated by the red dotted line on the map. After leaving Middle Point such water line should take a south-easterly direction in order to reach a location of sufficiently high level to carry the canal across the valley of the Chateauguay without inordinate expense.

The high lands between the Chateauguay and the Richelieu would then guide the line northward to St. Philomène, and after rounding the hill the Canal would take an easterly course to the Richelieu, six miles above St. John's. The length of this Canal would be fifty-eight miles and its cost fifty per cent. more than that of Mr. Jarvis' Beauharnois route. On the Beauharnois route there would be nine miles of lake navigation more, but twelve miles of canal navigation less than on the Middle Point line, so that both as regards cost of construction and facility of navigation, the Beauharnois route would be preferable.

Again, it has been proposed that the Canal should start from the upper reach of the Beauharnois Canal near St. Timothy and take a direct course to some point on the Richelieu.

Such line would evidently be forced to the north of the contour line near St. Philomène, and consequently the length of navigation could be very little shortened by it. But besides, between St. Timothy and St. Philomène, the ground adjoining the St. Louis, and between St. Louis and the Chateauguay is too low to carry a canal on the proposed level; and a proper location for such level could not be attained without ascending the Chateauguay to near Durham.

Reviewing the details now furnished, and after a careful examination of the country, I have come to the conclusion that the Beauharnois Canal in conjunction with Mr. Jervis' Beauharnois or navigable feeder route terminating at St. John's, is the most direct water line between Lake St. Francis and Lake Champlain that is practicable to construct within an amount of expenditure that could be at all entertained.

An examination of the diagram map and of the position of the contour line with reference to the lakes and rivers would I think rapidly lead to the same view; but nevertheless, it has been considered indispensable to present the details on which the conclusion arrived at is based.

The contour line is twelve feet above Lake St. Francis, and all the land within and to the south of that line has a tendency to rise southward, and is for the most part considerably above that level, the proposed depth of canal being eleven feet; if the canal crossed the tract within the contour line the minimum cutting for that portion would be twenty-three feet, and the average cutting much greater, so as to create an amount of expense that could not be contemplated except for a very short distance at some of the angles, or where an object of paramount importance to the navigation were attainable thereby.

In the foregoing comparisons it has been shewn that Mr. Jervis' Beauharnois or navigable feeder route between Lake St. Francis and Lake Champlain is much preferable to any line that can be made to the south of it to connect these waters; and this route was taken as a basis of comparision because it was most analogous to the routes compared with it, and had the same lockage. The reasoning adopted, however, does not in the least invalidate that followed in the preliminary part of this report, to shew that the C. Champlain level route is much preferable to the Beauharnois or N. Feeder route with branch to Caughnawaga.

Second,—It now remains to state what has been effected in examining the country between St. John's and Caughnawaga with the view of furnishing data to reach an approximate estimate for the Champlain Level Line, and at the same time to facilitate the location of the Canal on that route, should it be decided upon.

The following have been taken as the dimensions of Canal; width at bottom 80 feet, height of banks above bottom 15 feet, width at top, 15 feet, and side slopes 2 to 1, depth of water 11 feet.

These dimensions differ very little from those given by Mr. Jervis.

The level of ground that would give the least earth work in constructing the Canal, is of course that in which the excavation would exactly make the two banks. If there be much deeper cutting the extra excavation should be put into spoil in some form; but if the cutting be insufficient to make the banks the extra material can be obtained by making the Canal wider. And this is a point of importance, for independent of giving greater sea room, the wider the Canal the less the moving power for the same load and speed, and the less the abrading power of the waves on the banks, which is a consideration of some consequence in anticipation of a large trade with steam as the chief moving power, applied both to Propellers with cargoes and Tug Boats with Barges. To accommodate such vessels it is also desirable to make the curves as easy as possible, and it is believed that the facility and cheapness of this navigation will be more promoted by giving the Canal large capacity and easy curves than by endeavouring to shorten the length.

Keeping in view therefore the magnitude of the project, and the various circumstances that would effect its efficiency, detailed examinations become indispensable with the view of realizing at the least cost all the facilities which can be secured from the formation of the country. The undivided attention of a surveying party for an entire season could with advantage have been directed to this examination; but a large portion of the past season was given to the explorations already referred to in this report.

As a first step a base or approximate line was run from St. John's to Caughnawaga in the course near to which it was supposed the Canal should run. From this base line cross lines were taken to give a general idea of the formation of the country within those limits beyond which the Canal could not be carried under any modification of lockage likely to be adopted. From the information thus obtained, with some other particulars, a line has been selected for the consideration of the Commissioners, the general course and characteristics of which will be now briefly described and our approximate estimate furnished as soon as completed.

In selecting the line regard has been paid to the necessity of interfering as little as possible during the construction of the new Canal with the navigation of the present Chambly Canal. The new guard Lock must be placed on the river side of the present Lock at St. Johns. Above the Lock the river is to be deepened and a waterlight pier constructed on the place of that at the head of the Lachine Canal; for upwards of 7 miles below the guard Lock the Canal should be carried chiefly along the channel of the Richelieu passing west of St. Thérèse Island, and would for the most part present a width of water very sufficient to render it equal to first class river navigation. For 1¼ miles further the line would take the same direction as the Chambly Canal, and then diverging in a northwesterly course would pass without much difficulty through a break in the hill and reach the northern slopes of the Grand Coteau along which the Canal would run in a westerly direction towards Caughnawaga. On the diagram map I have shewn a contour line 31 feet above the bottom of Canal, and within the contour line the ground was higher, and it is out of the question to think of avoiding the deturn by cutting through the hill. The Grand Coteau would for the next 8 miles form the southern bank of the Canal, but on the northern side a heavy embankment would be required. For three fourths of this distance the Canal could be made 200 feet wide. For the remaining 10 miles to Caughnawaga, though the line runs not far from the hill the Canal must for the most part have two artificial banks, but can be made for a portion of the distance 200 feet wide and upwards. Across the Tortue where an acqueduct and heavy embankment would be necessary two lines have been surveyed. The northern line has the advantage in quantity of excavation and in the curves being easier and the length shorter; but the southern location crosses the river at a level 16 feet higher and where the gorge is much narrower, so as to reduce very materially the cost of the aqueduct and embankment, and on the whole I consider this the more desirable line.

Above Caughnawaga the line enters Lake St. Louis, at the same point with

Mr. Jervis' Champlain level line, from which it does not deviate much according to the survey of 1854, conducted by E. H. Tracy, Esq., C. E.

On the route but little rock cutting is met with and the earth excavations consist chiefly of a firm tenacious clay, well suited for canal purposes.

The length of the line from the head of the Pier at St. John's to Canghnawaga is twenty-five miles, and the fall of twenty-six feet will require two lift locks at Caughnawaga.

The examinations made show that this route presents great facility for completing the navigation on the enlarged scale to Chambly basin, and at less expense than what I calculated upon when contrasting the Champlain level with navigable feeder line. The connexion of the navigation with Chambly basin can be effected most judiciously, not by following the direction of the Chambly Canal for two and a half miles from the point where the Canghnawaga route diverges from it, but by making a branch, one and a quarter mile long, from the curve on the Caughnawaga route at a point one mile and a quarter from the Chambly Canal. By this means the construction of one and a quarter mile of Canal would be saved. The lockage to Chambly basin would be sixty-nine feet, when St. Ours Lock and Dam shall have been raisedfour feet. From the cross levels it appears that it is practicable to construct the main line of Canal to Caughnawaga by dropping a lock near the point where the branch to Chambly basin diverges from the main line, and this could be so arranged that the lock would be common to both routes and the construction and maintenance of one lock on the Chambly branch would thereby be saved. I apprehend, however, that the lower line would not present equal facilities with the route to Canghnawaga already described, but had time permitted, it would have been worth while to have had it surveyed and levelled.

From the data obtained an approximate estimate will be furnished, but to make a close estimate it would have been requisite to run the western line throughout and make the usual cross sections and borings and ascertained accurately the position and suitability of the quarries. Care will be taken, however, to make the estimate cover all contingencies likely to occur.

In note D has been added an extract from my former report with reference to Mr. Jervis' recommendation that the Locks should be made only thirty-six feet wide instead of forty-five feet, the minimum width on the St. Lawrence Canals. On this point no doubt is entertained that it would be unwise to adopt a less width than forty-five feet; but the exigencies of the survey put it out of my power to institute an inquiry as to whether it would be desirable to make the locks larger than on the St. Lawrence Canals.

It affords me much satisfaction to bear testimony to the intelligence and unwearied exertions of Mr. Norman and the other gentlemen by whom I was assisted during the season.

In submitting for the consideration of the department the foregoing details, ii has been my aim to state explicitly the bearing of the different questions alluded to, I can lay but little claim to originality, having availed myself of the various sources of information within my reach, and the Commissioners will perceive that several of the views advanced have grown out of suggestions made by the Board. I have the honor to be, sir,

Your obedient servant,

(Signed,) SAMUEL GAMBLE.

Thomas A. Begly, Esq.,
Secretary,
Department of Public Works.

Note A.

To shew that Routes Table No. 5 (see accompanying extract from Mr. Jervis' Report) has been incorrectly calculated, it is necessary to premise, that in Routes Table No. 4, the last column is given to represent, by miles of canal, the cost of transportation, independent of tolls between the common points; the entire Routes through river, canal and locks, being therein reduced to the standard unit of one mile of canal, on the basis of one mile of canal being equivalent (in cost of transportation, independent of tolls) to one lock, or to two miles of river navigation. And in order to find the miles of Canal (for Routes Table No. 5) to represent tolls in proportion to the same standard, Mr. Jervis takes "five-eighths "of the actual length of canal, which is the proportion of canal transportation "allowed for tolls." Now, this would be correct, when canal transportation, independent of tolls, is 8 mills, and with tolls 13 mills per ton per mile; but in the present case, the 8 mills includes the 5 mills for tolls, leaving 3 mills for canal transportation, independent of tolls; and therefore, instead of five-eighths, there should have been taken five-thirds or twelve-thirds, the length of canal to be added to Routes Table No. 4, to get the representative of the cost of transportation and tolls. To make this clearer, let it be supposed that canal transportation and tolls were each 4 mills, that is equal; in this case, a moment's consideration will shew that the equivalent miles to represent tolls, would be simply the actual length of canal on each route; and therefore, if tolls be greater than the cost of canal transport, a greater number of miles than the actual length of canal must be taken to represent tolls.

To shew the effect of such alteration in the arithmetic, it will be sufficient to state that the advantage of the Longueuil Route over the Sorel Route, would be reduced from 20 per cent. (which would follow from Routes Table No. 5) to 5 per cent., and the advantage of the Beauharnois or navigable feeder line over the Champlain level line, from 16 to 9 per cent.; the percentages being calculated in the same way as by Mr. Jervis.

Note B.

This tonnage is less by 180,000 tons than what the items in Mr. Jervis' second comparison, at page 29, would give. But the item of 1,080,000 tons in that comparison should be only 900,000 tons, that is, one-third of 2,700,000, as will appear from the mode in which the comparison is constructed.

Note C.

By referring to the description and estimate for the direct line, it will be perceived that the feeder is supposed to take its supply from the Beauharnois Canal. But the Beauharnois Canal is quite incapable in its present state of supplying water for an extra length of 42 miles of large canal, with lockages in two directions. Considerable expense would be incurred in adapting the canal to such altered circumstances. I have no data from which to calculate that expense; but if, for the present purpose, the feeder be supposed independent of the Canal, the length would be 9 miles, and the average cost per mile may be taken as equal to that of the 16.19 miles of feeder, when not navigable, including, however, the large acqueducts on the Chateauguay and St. Louis. In this way, the cost of the independent Feeder would be found to be upwards of £30,000.

But the direct line, with navigable feeder, would require, beyond what the Champlain Level would, the maintenance of 6 locks and 17 miles of canal, including upwards of 400 feet of large wooden trunk aqueduct over the Chateauguay and St. Louis. It is proposed only to take into consideration the extra establishments for the locks and the cost of periodically renewing the lock gates and wooden trunk aqueducts referred to, which is equivalent, at the lowest estimate, to more than £2,400 a-year, and this, at 6 per cent., is equal to the interest on £40,000. The simplest way to make the comparison of the estimates complete is to consider the annual expenditure as equivalent to an addition of £40,000 to the estimate, and taking the extra feeder into consideration, there is the total sum of £70,000, at least, to be added to the estimate for the direct line, with navigable feeder.

Note D.

(*Extracts from Report of* 10*th April*, 1855.)

Mr. Jervis recommends the Locks to be only 36 feet wide, inasmuch as Locks of that width would be sufficient to pass the Propellers on the Upper Lakes which are considered best adapted for conveying freight economically, and he adds that it is not advisable to make Locks larger than requisite, as increase of size causes delay in filling and emptying and in handling the gates and will be so far prejudicial to the Navigation.

Extra delay would, no doubt, occur in handling the gates, but some compensation would be afforded in the greater facility a vessel would have in entering and leaving a Lock a few feet wider than barely sufficient to pass her, and on the Welland Canal the three large Locks are often found of great advantage in passing two and sometimes three small vessels at once, and there need be scarcely any increase of time in emptying and filling the Locks as wide gates admit of larger sluices. But let it be conceded that a boat would take three minutes longer to pass through a Lock forty-five feet wide (the mininum width on the St. Lawrence Canals) than through one thirty-six feet wide. Between Lake Ontario and Lake Champlain none of the existing Locks on the St. Lawrence Canals are less than forty-five feet wide and there remain but three to be constructed, and if these were made forty-five feet wide the extra width at most would not cause a delay of ten minutes, and this could not prejudice freight trade between Oswego and Albany. As to the Welland Canal Locks there are twenty four which would require in any case to be enlarged, the only question is the scale of the enlargement; and by making those Locks forty-five feet instead of thirty-six feet wide the loss of time would be about an hour and a quarter. But let it be considered that the Welland Canal connects Lakes Superior, Michigan, Huron and Erie on the one hand, with Lake Ontario, the St. Lawrence, Lake Champlain and the Atlantic on the other. If the Welland Canal Locks are made forty-five wide there would be throughout those vast waters an uninterrupted communication for vessels which could pass that width. During periods of high freights side-wheel steamers from the St. Lawrence could take part in the trade on the Upper Lakes; at all times there would be a convenience in being enabled to pass vessels of the additional width of nine feet; in hurried seasons the small craft might be passed in pairs, and in no case could the difference of an hour and a quarter influence any competition that the Welland Canal is likely to meet.

Note E.

A short reference to Caughnawaga direct line with feeder not navigable may be considered necessary. From Mr. Jervis' Routes, Table No. 4, it appears that this route is shorter by an equivalent of four miles of Canal than the Canada Champlain Level Line, one Lock being considered equal to one mile of Canal.

The estimate for the Caughnawaga Direct Line with Feeder not navigable is £821,810. To this must be added, say £60,000 for the items in note C, when modified to suit the alteration in the feeder. The total estimate should therefore be taken as £881,810, while Mr. Jervis' estimate for the Lake Champlain level line is £926,558, so that the latter would cost say £45,000 more than the former by itself; but as nine and a half miles of the Chambly Canal would be enlarged in constructing the Lake Champlain level line, the Sorel route and the Lake Champlain level route could together be constructed for £1,120,578 while the Canada direct line with feeder not navigable, and the Sorel route would together cost £1,376,205; so that there would be by adopting the Canada Champlain level line a saving of about £255,000, which at six per cent. would produce £15,300 a year on account of expense, which it is clear should not be incurred to save four miles of Canal navigation equivalent, independent of tolls, to one and a half cents, or about one penny per ton or one-tenth of a penny per barrel of flour. So that it is obvious that if the Canada Direct Line were adopted the feeder should be made navigable as recommended by Mr. Jarvis.

L. G.

Collecting our data.

The several routes from the St. Lawrence to St. Johns in length and locks, are as follows:

ROUTES—TABLE No. 1.

	Length in Miles.	No. of Locks.
First of Sorel River 46 canal 12	58.	9. 1Ga.
Second or Longueuil	28.28	6. 1Ga.
Third or Caughnawaga, Champlain Level	34.46	2. 1Ga.
Do do Direct Line	25.57	8.
Fourth or Beauharnois	37.66	3.

The length of canal and river navigation on the several routes from a common starting point at the junction of the Beauharnois route with the Beauharnois Canal, will be as follows, (including the St. Lawrence Canals,) counting Guard Lock at St. John's as one Lock.

ROUTES—TABLE No. 2.

	River Navigation in Miles.	St. Lawrence Canals in miles.	St. Lawrence and Champlain Canal in miles.	Totals.	
				Miles of Canal.	No. of Locks.
First, or Sorel	110	10.50	12.	22.50	21
Second, or Longueuil	17	10.50	28 28	38.78	18
Third, or Caughnawaga, Champlain Level,	14	2.50	34 46	36 96	9
Do do Direct Line	14	2.50	25.57	28.07	14
Fourth, or Beauharnois	..	....	37.66	37.66	3

One lock is considered rather more than an equivalent to one mile of canal, in the expense or time of navigation. The difference would be greater, if considered in regard to the expense of repairs and maintenance. Taking as a rule that they would be equal, and reducing the length of canals and locks on this basis, the comparison would stand as follows, comparing from the same point on the Beauharnois Canal as above.

ROUTES—TABLE No. 3.

	River Navigation in Miles.	Total Canal, in miles.	Total River and Canal, in Miles.	Total No. of Locks.	Equivalent in Locks and Canal, in Miles of Canal.
First, or Sorel	110	22.50	132 50	21	43.50
Second, or Longueuil	17	38.78	55.78	18	56.78
Third, or Caughnawaga, Champl. Level.	14	36.96	50 96	9	45.96
Third, or Direct Line	14	28.07	42.07	14	42.07
Fourth, or Beauharnois	..	37.66	37.66	3	40.66

The last column, it will be observed, is only a comparison of the artificial works, and does not consider the river navigation. It remains to make comparison of the cost of navigation, including river and canal. In the comparisons that have been instituted to show the relative cost between canal and river or lake transportation, one mile of the former has been considered equal to near three miles of the latter, but that included tolls. If tolls be left off it will be something less than two of river to one of canal; assuming for this comparison the ratio of two to one, the cost of navigation would be shown by including river, canal and locks, (exclusion of tolls,) and will be as follows:

ROUTES—TABLE No. 4.

	Total length of River and Canal in miles.	Total equivalent to miles of Canals.
First, or Sorel	132.50	98.50
Second, Longueuil	55 78	65.28
Third, Caughnawaga, Champlain Level	50.96	52.96
Third, Caughnawaga, Direct Line	42.07	49.07
Fourth, Beauharnois	37.66	40.66

If tolls be added on the portion of canal on each route at 5 mills, or half a cent per ton per mile, it may be represented by adding to the last column in Table 4, $\frac{5}{8}$ of the actual length of canal, which is the proportion of the cost of canal transportation allowed for toll; the comparison by miles of canal, will be as follows:

ROUTES—TABLE No. 5.

	Toll on Canals in cents, per Ton.	Toll will increase. — Length of Canal in miles.	Total Canal representing the last column in the above table and including Tolls.
First, Sorel	11.25	14.05	112.55
Second, Longueuil	19.39	24.20	89.48
Third, Caughnawaga, Champlain Level	18.48	23.10	76 06
Third, Caughnawaga, Direct Line	14 04	17.55	66.62
Fourth, Beauharnois	18 88	23.55	64.21

It appears from Table No. 4 that the cost of transportation, without regard to tolls, will be the cheapest on the Beauharnois Route, by nearly one-fifth. And from No. 5 including tolls, it will be near four per cent. cheaper than the most favorable of the other routes, or than the Caughnawaga Direct route for the western trade.

It will have been perceived that the above includes a portion of the canals on the St. Lawrence, that are now in operation, and can form no part in comparison for cost of construction. I now proceed to state of estimated cost of construction for the projected St. Lawrence and Champlain Canal on the several routes.

Estimated Cost of Construction.

Routes.	Dollars.	Pounds.
First, Sorel	2,016,080	504,020
Second, Longueuil	3,473,360	868,340
Third, Caughnawaga, Champlain Level	3,706,231	926,558
Do do Direct Line	3,287,240	821,810
Do do Feeder made navigable	4,267,890	1,066,972
Fourth, Beauharnois	3,369,400	842,350

ST. LAWRENCE AND LAKE CHAMPLAIN PROPOSED CANAL.

DEPARTMENT OF PUBLIC WORKS,
10th April, 1855.

SIR,—In conformity with instructions, I have examined the Report upon this project by J. B. Jervis, Esquire, chiefly with the view of furnishing, for the consideration of the Commissioners, a statement of circumstances affecting the relative merits of the Caughnawaga direct line with navigable feeder, the route recommended by Mr. Jervis, and the Caughnawaga Champlain level line, and I now beg leave respectfully to submit the results of my examination.

For the description and other details of the lines, Mr. Jervis' Report must be consulted, and the accompanying diagram map will convey a general idea of all the routes.

At page 78 Mr. Jervis states that if the feeder of the direct line be made navigable, a practical union of the two routes (the Beauharnois and direct line routes) would be effected, that would provide for the best accommodation of the several interests of trade referred to; and he proceeds, "The Caughnawaga level "does not secure this. It is about 12 per cent. less favourable for the trade that "collects in Lake St. Louis, and near 16 per cent. less favorable than the western "trade that seeks the Hudson. No adequate benefit in my judgment would be "obtained to compensate for this loss, especially when it is considered that the "general question of competition with a level route is such that all the attainable "sources of advantage should be carefully secured in the route adopted."

The per centage of advantages given in the preceding extract form the basis on which the Caughnawaga direct line with navigable feeder has been recommended by Mr. Jervis in preference to the Caughnawaga Champlain level, and those per centages are derived from Routes table No. 5 in Mr. Jervis' Report (see page 1.)

Considering the high authority by which Routes table No. 5 has been sanctioned, and the importance attached to it in this discussion, I anxiously investigated the subject before feeling entire confidence in the conclusion at which I had arrived, that Routes table No. 5 is throughout incorrect in arithmetic and unsound in principle (see N. A.).

Correcting the arithmetic the per centage of advantage in favor of the direct line with navigable feeder, would be reduced from 16 to 10 per cent. This per centage which would apply simply to the amount of freight and tolls (30 cents per ton) between the common points at Beauharnois and St. John's, would not on investigation prove unfavorable to the Champlain level, but cannot be relied upon as a basis of comparison, inasmuch as, in comparing the merits of these routes, the principle of charging tolls by the mile, involved in the construction of Routes table No. 5, is unsound; for this would necessarily give the greater amount of tolls on the longer line; whereas on the contrary when the longer line appears to be the cheaper, it is clear that the Province may, with equal advantage to the Revenue, charge less toll (instead of greater) on the longer line than on the shorter, and the difference might be such as to more than counterbalance the extra freight on the longer line. In short the question of tolls depends altogether on extraneous circumstances, as for instance on the competition of the Erie Canal, and the true index of economy for each route depends upon, and can be deduced from, the cost of freight per ton between the common points, and the charge per ton requisite to cover Provincial outlay on the interest of the cost of construction and on the maintenance of the works.

Before referring to the estimates it is requisite to premise, that no doubt is entertained that the construction of either of the routes in question, would be followed by the enlargement of the Sorel route to the same scale of navigation. This improvement was contemplated in the Public Works Report for 1851 on this project, and would be required in order to afford to the trade of Quebec and the Lower St. Lawrence equal facility with the West of communication to and from Lake Champlain and the United States.

The following are the estimates for the three routes:

Caughnawaga Champlain level	£926,558	currency.
Caughnawaga direct line with navigable feeder	£1.066.972	"
Sorel route	£504,020	"

For about nine and a half miles from the head of the Pier at St. John's the Sorel route coincides with the Caughnawaga Champlain level, and the estimate for the portion common to both lines is about £310,000

To facilitate the comparison there should be added £70,000 for items detailed in Note C. to the estimate for the Navigable Feeder Line, the total cost of which would thus be equivalent to £1,136,000 which alone exceeds the aggregate cost (£1,120,000) on constructing the Champlain level to Caughnawaga, and to Sorel route to the mouth of the Richelieu; and the aggregate cost of the Caughnawaga direct line with navigable feeder and the Sorel route would amount to £1,640,000, so that by adopting the Champlain Level, there would be a saving equivalent to £520,000 on the construction of the two routes, or in the narrower view of the Sorel route not being completed, the saving would be £210,000; with the great advantage both to the Province and the Sorel route of having the worst and most expensive part of the present canal on the Sorel route enlarged and improved to he extent of 9½ miles and out of an entire length of canal of 12 miles.

To be weighed against these decisive advantages, is the extra cost of freight to which the vast western trade would be subjected by the adoption of the Champlain level instead of the navigable feeder line.

Taking into account the lake, locks, and canal on each route between the common points at Beauharnois and St. Johns, this extra freight by the Champlain level is estimated in note B. at 5 cents per ton (of 10 barrels of flour) or half a cent per barrel of flour, even this minute difference would become a formidable sum when magnified by the trade of the West, but a very clear demonstration of decided advantages to Canada interests, and Canada merchants should be made out to justify the expenditure of £520,000 to save the extra freight of half a cent per barrel on the transport of flour from the lakes to New York, for the extra charge on the lumber trade, and the trade of Lake St. Louis would be scarcely appreciated, making about one-eighth of a cent per barrel in flour.

In viewing this subject in different bearings it should be taken into consideration:

First, That the rates on a barrel between Albany and Buffalo by the Erie Canal ranged in 1851 from 43 cents to 60 cents, in 1852 from 47 cents to 68 cents, and in 1853 from 48 cents to 74 cents; so that if no equivalent were allowed by the Province for the less expenditure, half a cent per barrel could not under such circumstances, be supposed materially to affect the trade, but at the same time it must be borne in mind, that the enlargement of the Erie Canal and the opening of the Canada route will not only reduce the actual cost of transportation, but also confine within narrow limits the variation of that cost.

Second, Oswego and Albany are the points nearest to each other, between which competition for the Hudson River trade can take place on the part of the Canada route against the Erie Canal, and half a cent per barrel on flour would be equivalent to nearly three per cent. on the estimated amount of freight and tolls between those points, and to nearly one per cent. between Chicago and New York.

Third, Half a cent per barrel on flour could not in the least interfere with the monopoly of the Lake Champlain trade that the Canada route must enjoy.

Fourth, The extra freight from Lake St. Louis to Lake Champlain would be equivalent to about one-eighth of a cent per barrel on flour.

Fifth, Half a cent per barrel on an annual tonnage of 500,000 tons is equivalent to the interest, at 6 per cent., of £104,167 currency, so that until the portion of the western trade due to the Canada route shall have reached 2,500,000 tons annually, the amount of interest on £520,000 saved by adopting the Champlain Level would more than counterbalance the extra freight.

Sixth, The annual amount of western trade to the Hudson, which Mr. Jervis estimates the Canada route would have on opening, is 300,000 tons, increasing to 1,000,000 tons in five years in spite of our extra cost of transport beyond that by the Erie Canal, of five cents per barrel of flour; and the former tonnage is calculated on the basis of the western trade to Hudson River being increased to twice its amount in 1853. Both tonnages are independent of the lumber and local trade, and of 370,000 tons of Lake Champlain trade, which would be subject to the extra freight of half a cent per barrel, but not to the rivalry of the Erie Canal. This is the most unfavourable view taken by Mr. Jervis, and is based on the supposition of the New York Champlain Canals enlarged. The most favourable view of the expected trade, with the New York Champlain Canal enlarged into a Ship Canal for 65 miles, and the Hudson River improved for 20 miles below Troy, at a total cost of £2,000,000 currency; thereby reducing the cost of sending a barrel of flour from Oswego to Albany from 24 cents to 18 cents, with a difference of 6 cents per barrel. In this case Mr. Jervis' estimate of western tonnage to the Hudson River by the Canada route is is 1,350,000 tons annually, and if this were doubled and the Lake Champlain trade added, the gross amount would be 3,070,000 tons, and the balance of freight and interest would then be about one-tenth of a cent per barrel on flour against the Champlain Level. Such increase of tonnage is not expected, until the navigation in the State of New York to meet the Canada route shall have been improved in the most perfect manner for 85 miles in length; and until also the western trade to Hudson River in 1853 shall have been increased fourfold, which Mr. Jervis considers it safe to expect in fifteen years.

Seventh, By the time the annual western tonnage by the Canada route is, under propitious circumstances, progressing upwards from 2,500,000 tons, it may be fairly anticipated that the cost of freight, and of course the differential half cent per barrel will be diminished, so that on the balance of extra freight and saving of interest by following the Champlain level, there would still be probably no loss, though a loss, under such prosperous circumstances, could not justly be balanced against the benefit of having a light burthen on the trade in its infancy. Besides the trade is not expected to reach 2,500,000 tons annually until the New York Champlain Canal is made a Ship Canal; and in that case the Erie Canal route would have no advantage over the Canada route, so that the half cent per barrel would be of less consequence.

Eighth, It will be expected that some distinct reference should be made to the effect that would be produced on the nett revenue by the extra expenditure on the navigable feeder line.

This question is in fact embraced in what goes before; but it may be satisfactory to exhibit the calculations in a tabular form.

Tabular statement to shew, along with the saving of freight per ton, the extra charge per ton that, with different annual amounts of western tonnage, should be imposed on the western trade to cover the interest, at six per cent., (£31,200) on the additional expenditure of £520,000, to be incurred in case the navigable feedre line were adopted instead of the Champlain.

(For anticipated annual tonnage see Mr. Jervis' Report, pages 48 to 51.)	By Navigable Feeder Line.				Supposed annual amount of western trade on the Canada Route.
	Saving in Freight on western trade.		Extra charge on western trade, to pay extra interest.		
	Per ton.	Per brl.	Per ton.	Per brl.	In tons.
	5 cents.	½ cent.	25 cents.	2½ cents.	500,000
1st.—With the N. Y. Champlain Canal not enlarged, say......................	5 "	½ "	18 "	1¾ "	700,000
	5 "	½ "	12½ "	1¼ "	1,000,000
2nd.—With that Canal made and enlarged Erie Canal, say......................	5 "	½ "	9½ "	1 "	1,300,000
3rd.—With that Canal converted into a Ship Canal, say......................	5 "	½ "	7 "	7/10 "	1,800,000
	5 "	½ "	6¼ "	6/10 "	2,000,000
	5 "	½ "	5 "	½ "	2,500,000
	5 "	½ "	4 "	4/10 "	3,000,000

The above annual tonnages in the three cases Mr. Jervis expects gradually to increase and more rapidly; in the first case the tonnage given for the second case has been corrected.

If lower rates than in the Table were charged there would be a loss to the Province; and at those rates there would be a loss to the trade, after deducting the saving of freight until the western tonnage on the Canada route should reach 2,500,000 tons per annum.

Ninth, The amount saved by adopting the Champlain level, namely, £520,000, or a portion thereof, could be expended so as to confer on the trade advantages for more than equivalent to the extra half cent per barrel; as for instance in promoting the enlargement of, or still more in influencing the scale of the enlargement of the New York Champlain Canal; by which a saving of 6 cents per barrel on flour would be effected.

Tenth, Should the rapids parallel to the Beauharnois Canal be at any time improved, so as to permit the passage of laden propellers, the extra expenditure involved in the construction of the navigable feeder line, must be regarded as almost wholly lost.

Eleventh, The extra loss of time for a propeller by the Champlain level would be about three hours, and for that time the propellers paid by the differential half cent per barrel, but no allowance has been made for the detention of the cargo, which would be inconsiderable.

Twelfth, The adoption of the Champlain level would insure the passage through Lake St. Louis of all the trade up and down; and thus give the merchants of Montreal full opportunity of taking part in that trade. This however is mentioned only as a consequential benefit, for it is considered manifest that whatever route is best calculated to promote the success of the undertaking is the route that would be most advantageous to the interest of Montreal.

Mr. Jervis shows that the Longueuil route would not suit the trade, and though the passage of the western trade by Montreal to Longueuil would produce advantages that might be of consequence to a village; it is believed that those incidental advantages would not compensate the City of Montreal for the inconvenience resulting from the crowding of vessels at busy seasons through the Lachine Canal, and the Harbour of Montreal, especially when the trade should have attained much magnitude. On the other hand the passage of any amount of trade through Lake St. Louis could never be an inconvenience, and it would afford to Montreal merchants some additional facility if it can be attained without sacrifice of the interests of the projected thoroughfare.

Influenced by the views now stated, I have come to the conclusion that it is the interest of the Province to adopt the Champlain level route from Caughnawaga to St. John's instead of the direct line with navigable feeder; inasmuch as the amount ultimately saved thereby (£520,000) is more than an equivalent for the differential freight of half a cent per barrel on flour; a great portion of which would not in any event be a burthen exclusively on Canada; and because the two routes, the one to Sorel and the other to Caughnawaga on the Champlain level can be constructed for about the same expense as the Caughnawaga direct line with navigable feeder, and in fact, but for the adverse weight of Mr Jervis' opinion it would not have been deemed nesessary to go into so many details.

With reference to the other routes for the proposed Canal Mr. Jervis shews that the Sorel route (by itself) and the Longueuil route are out of the question, as they would neither accomodate the western trade nor the Lumber trade; and facts enough are stated to warrant this conclusion, though I cannot go the full length with Mr. Jervis in the calculation relative thereto. It is also shewn by Mr. Jervis that the Beauharnois route branching from the Beauharnois Canal two and a half miles and six locks above the head of the Lake St Louis, would not without a branch to Caughnawaga as is evident accomodate the Lumber trade and the other trade of Ottawa and Montreal.

There remains only one other project to be compared with the Champlain level line, namely the Caughnawaga direct line with feeder not navigable. The estimate for the latter line is £821,810, and adding £50,000 for items contained in note C, it will follow that the direct line with feeder not navigable would cost say £55,000 less than the Champlain level; but if as before, the improvement of the level route be embraced there would be a saving by adopting the Champlain level of £255,000. The cost of transportation indipendent of tolls for the western and other Trade would be about ⅛ of a cent greater by the Champlain level than by the direct line with feeder not navigable; so that the annual tonnage should reach at some distant period 5,000,000 tons, before the saving of freight by the direct line with feeder not navigable would be equivalent to the interest of the extra cost involved in adopting it.

It has been considered proper to exhibit the arithmetical bearing of the subject in its fullest extent, but in fact, most practical men will admit, that when comparisons of the cost of transportation, which depends on varying circumstances, and in such minute fractions of difference, the true significance of the results is, that the two routes are practically on an equality, in the point of view in which they have been compared, and that that route should be adopted which has other advantages to recommend it, and in the present case the saving of £255,000, in the improvement of the Sorel Route is an argument which leaves no room for hesitation in adopting the Champlain level line.

The minimum width of the Locks on the St. Lawrence Conals is 45 feet. Mr. Jervis however, recommends the Locks on the proposed Canal to Lake Champlain, as well as on the enlargement of the Welland Canal, to be only 36 feet wide inasmuch as freight by sail or propeller will be the great business of the Canal, and Locks of that width would be sufficient to pass the propellers on the upper Lakes, which are considered best adopted for carrying freight economically; and he adds, that it is not advisable to make Locks larger than requisite, as increase of size causes delay in filling and emptying the Locks, and in handling the gates, and will be so far prejudicial to the Trade.

Extra delay would no doubt occur in handling the gates, but some compensation would be afforded by the greater facility a vessel would have in entering and leaving a Lock a few feet wider then barely sufficient to pass her; and on the Welland Canal, where there is a mixed trade, the three large Locks are often found of advantage in passing two small vessels at once, and there need be scarcely any increase of time in emptying and filling the Locks, as wide gates admit of large sluices. But let it be considered, that the passage of a 45 feet Lock would occupy 3 minutes more than that of a 36 feet Lock. On the proposed Route between Lake Ontario and Lake Champlain, none of the existing Locks are less than 45 feet wide, and if the three Locks, that remain to be constructed were made 45 feet wide, instead of 36 feet, the loss of time thereby would not be ten minutes, which could affect the freight trade between Oswego and Albany.

As to the Welland Canal there 24 Locks, which must shortly be enlarged, and by making these Locks 45 feet instead of 36 feet wide, the loss of time would be about one hour and a quarter. The Welland Canal connects Lakes Superior, Michigan, Huron and Erie on the one hand; with Lake Ontario, the St. Lawrence, Lake Champlain and the Atlantic on the other hand. On this unparallelled highway for inland commerce, there will not on either side of the Welland Canal be any Lock less than 45 feet wide, and in my judgment no sufficient reason has been given for reducing the width of the Lock on the connecting link to 36 feet. On the contrary during periods of high freight, side wheel steamers from the St. Lawrence and Lake Ontario which would require the larger Lock, might take part in the trade on the Upper Lakes; at all times there would be a great advantage in enabling such vessels to pass from the lower to the higher Lakes, in hurried seasons the small craft might be passed in two or three together; in no case could the difference of an hour and a quarter influence unfavourably any competition the Welland Canal is likely to meet; and in fine Mr. Jervis' Report shews that the size of propellers best adapted for the Lake trade is by no means a settled point, and certainly Mr. Jervis does not appear to be fully decided as to the proper length for the Lock. The cost for the extra width would be inconsiderable.

In Note D, are added some observations to show that the comparison made by Mr. Jervis of the cost of transportation by the Canada Route and by the Erie Canal require modification.

I have the honor to be, Sir,
Your very obedient servant,
(Signed) SAMUEL GAMBLE.

Note A.

To shew that Routes Table No. 5, in Mr. Jervis' Report, has been incorrectly calculated, it is necessary to premise that in Routes Table No. 4, the last column is given to represent proportionally by miles of Canal, the cost of transportation independent of tolls between the common points at Beauharnois and St. Johns, the entire Routes through River, Canal and Lakes, being therein reduced to the standard unit of one mile of Canal, being equivalent (in cost of transportation independent of tolls) to the passage of one Lock or to two miles of river navigation.

In order to find the miles of Canal (for Routes Table No. 5) to represent tolls in proportion to the same standard, Mr. Jervis takes $\frac{5}{8}$ of the actual length of Canal " which is the proportion of Canal transportation allowed for tolls." Now this would be correct only when Canal transportation, independent of tolls, is 8 mills per ton per mile, and tolls 5 mills; but in the present case 8 mills include the 5 mills for tolls leaving 3 mills for Canal transportation independent of tolls; and therefore instead of $\frac{5}{8}$ there should have been taken $\frac{5}{3}$ or $1\frac{2}{3}$ the actual length of Canal for the 2nd column in Routes Table No 5; which shows the miles to be added to Routes Table No 4, in order to get the numbers in the last in Routes Table No 5, to represent by miles of Canal, the agregate cost of transportation and tolls by each Route. An analogous result, to produce the same relative percentages, could have been much more intelligibly arrived at, by multiplying the column in Routes Table No. 4, by 3, and the actual lengths of Canal by 5. and adding the two together for freight and tolls. To shew the effect of the correction of the arithmetic, it will be sufficient to state that the advantage of the Longueuil Route over the Sorel Route, would be reduced from 20 per cent. (which would result from Routes Table No. 5) to 4 per cent, and the advantage of the Beauharnois or navigable feeder line over the Champlain level line from 16 to 10 per cent.

But no reliance can be placed on any of those percentages, for the elements of Routes Table No 4 are incompatible with Mr. Jervis' prices at pages 23, 24, &c. In forming Routes Table No. 4, Mr. Jervis has taken 2 miles of River Navigation as equal to one mile of Canal Navigation independent of tolls; but the latter is equal to the difference of 8 mills, and 5 mills, that is to 3 mills per ton per mile, and river navigation would hence be deduced to cost but 1½ mills per ton per mile, while at pages 23 &c. it is uniformly taken at 2½ mills per ton per mile. Keeping in view the scale of Canal contemplated, about 1½ miles of River navigation would be equivalent to one mile of Canal navigation, so that if the latter be taken at 3 mills per ton per mile, the cost of the former would be 2 mills, which is something above the lowest price at which transport by long voyages on the lakes is effected, and it must be recollected, that the prices all relate to supposed circumstances of long voyages, large trade, and competition with the Erie Canal.

It was necessary to shew the entire incorrectness of Routes Table No. 5 ; but there is no object in correcting the calculations as the principle of charging tolls by the mile is elsewhere shown to be inapplicable in considering the relative merits of the two Routes.

It may be added that in no part of Mr. Jervis' Report, is the cost of transportation independent of tolls on the proposed Canal, explicitly stated, but it is easily to be three mills per ton per mile as 8 mills and 5 mills are uniformly taken throughout the one for the cost of transportation and tolls, and the other for tolls.

S. G.

NOTE B.

In order to ascertain the difference in the cost of freight between the common points by the Champlain level line, and the navigable feeder line, it can readily be seen from Routes Tables 2 and 3 in Mr. Jervis' Report that by the Champlain level route there are 14 miles more of Lake navigation and five lift locks and one guard Lock more to pass, and $\frac{7}{10}$ of a mile less of Canal, than by the Beauharnois or navigable feeder line. Balancing the $\frac{7}{10}$ of a mile of Canal against the Guard Lock and taking 1½ miles of Lake navigation in Lake St. Louis as equivalent to one mile of Canal transportation, and also taking the passage of one Lock as equivalent to one mile of Canal, the difference against the Champlain level line would be equal to 14. 3 miles of Canal, the cost of transportation over which, would at three mills per ton per mile amount to 4. 3 cents, and at four mills per ton per mile to 5.7 cents ; and the average of these is 5 cents or ½ a cent per barrel of flour.

And it is believed that the cost of transportation by the Champlain level over that by the navigable feeder line may be taken as fairly ranging about 5 cents per ton or half a cent per barrel.

S. G.

NOTE C.

By referring to the description and detailed estimate for the direct line it would be perceived that the Feeder is supposed to take its supply from the Beauharnois Canal. But the Beauharnois Canal is altogether incapable in its present state of supplying water for an extra length of 42 miles of Canal and lockages in two directions.

Considerable expense would be incurred in adopting the Canal to such altered circumstances.

I have no data from which to calculate that expense, but if, for the present purpose, the feeder be considered independent of the Canal, a sufficient approximation to the cost will be obtained by calculating the extra feeder at the same price per mile as the estimate for the 16. 19 miles of feeder when not navigable, would give, after having deducted the large aqueducts over the Chatauguay and St. Louis Rivers. The length of the extra feeder would be 9 miles and the cost say £ 30,000.

The direct line with navigable feeder would require the maintenance of 6 Locks and 17 miles of Canal more than what the Champlain Level would require.

It is now however intended to take into consideration, only the extra establishments for the Locks, and the cost of periodical renewing the large wooden trunk aqueducts (upwards of 400 feet long) over the Chateauguay and St. Louis Rivers. These two items would entail an expenditure equivalent to upwards of £2,400 per annum, and at 6 per cent this would represent a capital or expenditure of £40,000, and the simplest way to make the comparison of the expense of the two Routes more complete is to add to the estimate for the direct line with navigable feeder. This sum of £40,000, which together with £30,000 for the extra Feeder, would make £70,000; and the sum may be taken at £50,000 when the feeder is not navigable.

S. G.

NOTE D.

Mr. Jervis in comparing the cost of transportation between Oswego and Albany by the Canada Route, with that by the Erie Canal, allows in his calculations the following prices including tolls on the Canals;

By the New York Champlain Canal while not enlarged	14 mills per ton per mile,
By the enlarged Erie Canal	8 " " " " " "
By the St. Lawrence Canals and the proposed Canal to Lake Champlain	8 " " " " " "
By Lake and River navigation	2¼ " " " " " "

The enlargement of the Erie Canal to three times its former volume is expected by Mr. Jervis to reduce the cost of transportation and tolls from 14 mills to 8 mills per ton per mile.

The St. Lawrence Canals are three times the size of the enlarged Erie Canal. And Mr. Jervis states, in estimating the cost of Canal transportation, including tolls, as equal on the enlarged Erie Canal and the St. Lawrence Canals; a concession is made in favour of the Erie Canal, "that may not and probably will not be realized,"

When it is remembered that hitherto the enlargement of a Canal has always cheapened the cost of transportation, it is scarcely reasonable to compare on equal terms transportation by the enlarged Erie Canal, with barges of 200 tons burthen moved slowly by horse power, and transportation by the St. Lawrence Canals, which invite the Lakes to deepen their harbours and enlarge their propellers, and which will permit the passage of steamers of 600 tons burthen on an uninterupted voyage of upwards of 1500 miles.

And while the enlarged Erie Canal and the St. Lawrence Canals are placed on an equality in the cost of transport including tolls, the St Lawrence Canals including the passage of Locks are placed almost on an equality with the Lake and River navigation, in the cost of transportation independent of tolls. For deducting five mills for tolls from eight mills there remain for the cost of transportation three mills per ton per mile including the passage of Locks, while 2¾ mills per ton per mile are allowed for Lake and River navigation. This is altogether an amount of concession, the reasonableness or necessity for which is not apparent, especially when it is remembered that Mr. Jervis considers two miles of river and Lake navigation, only as "rather more" than an equivalent for one of Canal navigation independent of tolls. It should be born in mind, however, that Mr. Jervis' comparison is cautiously guarded, like other parts of the Report, by qualifying statements; but the prices are clearly incompatible with each other, in fact three mills per mile where Locks are included without allowance, would in the present case be equivalent to less than 2½ mills per ton per mile, where a mile is added to the length of the Canal for each Lock; so that Mr. Jervis' price for transportation on a mile of Lake or River navigation is greater than that on a mile of proposed Canal without Locks.

In Mr. McAlpin's report on the Canals of New York for 1853 he estimates the cost of transportation on the enlarged Erie Canal at four mills, and on the Lakes between Chicago and Buffalo at two mills per ton per mile. Mr. Jervis' price for transportation on the St. Lawrence Canals is three mills, which thus appears to be the mean between the cost of transportation by the enlarged Erie Canal and by the great Lakes, and should, I think, be therefore considered a very reasonable approximation; but the adoption of that price on the above principle requires that the natural navigation should be taken at two mills per ton per mile, and if one price be increased so should the other.

By multiplying 263 miles of natural navigation by ¾ mill (the difference between 2¾ mills, Mr. Jervis' price, and two mills) the result would give twenty cents per ton or two cents per barrel of flour; and if that amount be deducted from Mr. Jervis' estimate of cost of transport by the Canada route in comparisons 3, 4 and 5 (see pages 24 and 25) the results will approach more nearly to what proportionate prices would give. In case of the Champlain New York Canal not being enlarged, the extra cost by the Canada route would, after making this deduction of two cents, be three cents on a barrel of flour, and in case of the New York Champlain Canal being made a Ship Canal by allowing those two cents, the saving by the Canada route would be about 2½ cents per barrel in both cases, between Oswego and Albany.

It would be instructive also to compare the cost of transportation independent of tolls by the two routes between Oswego and Albany, but the whole subject requires further elucidation if a close approximation be required.

S. G.

Thomas A. Begly, Esq.,
Sec. Department of Public Works.

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TORONTO:

PRINTED BY JOHN LOVELL, YONGE STREET.

F. Braun

REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS

FOR THE

YEAR ENDING 31st DECEMBER, 1856:

FURNISHED

IN ACCORDANCE WITH THE PROVISIONS OF THE ACT,
9 *VICTORIA, CAP.* 37.

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TORONTO:
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1857.

GENERAL REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS,

FOR THE YEAR 1856.

To His Excellency Sir Edmund Walker Head,

GOVERNOR GENERAL OF BRITISH NORTH AMERICA, &c. &c

MAY IT PLEASE YOUR EXCELLENCY,

The undersigned, Commissioners of Public Works, have the honor to submit to Your Excellency a general Report upon the several works, &c., under their charge and management, in conformity with the provisions of the Act 9 Victoria, chapter 37, section 14, which requires such a Report to be laid before Your Excellency and the two Houses of the Legislature, shewing the state of each work, and the amount of receipts and expenditure thereon.

The following statements are appended to the Report:

No. 1.—Statement of those works which yield revenue, shewing the cost of their construction to the 1st of January, 1857, the expenditure on them since the date of the last Report, and the cost of repairs, maintenance and management.

No. 2.—Statement of works from which no revenues are derived, the outlay thereon up to the 1st of January, 1856, and the expenditure from that date to the 1st of January, 1857.

No. 3.—Statement of the expenditure since the date of the last Report, on the erection, repairs and maintenance of light-houses, buoys, &c.

No. 4.—Statement of the amounts paid, or the awards made for damages, since the last Report; shewing also the amounts paid to the Arbitrators or Commissioners, for services and expenses.

No. 5.—General statement, shewing the total amount expended by the Department of Public Works, as detailed in the foregoing.

WELLAND CANAL.

Opening and closing of the navigation.—The great accumulation of ice in Lake Erie, and the backwardness of the spring, prevented the opening of the navigation of this canal in 1856, until the 26th of April, being ten days later than the previous year, and it was closed by frost on the 13th of December last; the navigation season for 1856 being thus 11 days shorter than that of the preceding year.

The number of vessels, however, which passed through the canal exceeds by sixty-nine that passed in 1855.

Interruptions to the Trade.—The only interruption to the trade during the past season, of any importance, was caused by the gates of lock No. 7 being carried away on the 11th of November, by which the navigation was suspended for four days. Otherwise but little detention or interruption was occasioned, and that only by the time occupied (not over a few hours) in the changing and hanging of a gate in lieu of one damaged by vessels.

A large expenditure on the construction of lock-gates and bridges has been unavoidable, in order to substitute new ones for those no longer to be trusted, owing to the length of time they had been in use, or from injuries received. On the opening of the navigation the canal will be in a very efficient state with respect to lock-gates, as every lock will have been provided with sound ones, besides there being a sufficient number of extra ones in readiness for any emergency.

In the progress of the work of re-building the bridges over the Dunnville Dam and Sulphur Creek, more work than had been anticipated was necessary, owing to the state of decay in which the piers were found to be. They have been completed in a substantial manner, and will last for many years without further repairs.

The increased number of steam vessels passing through the canal, and the effect upon the banks, caused by the surge therefrom, has made a large outlay necessary to protect the face of the banks.

On the 14th of December last, the severest storm that has occurred on Lake Erie since 1844, caused very serious injury to the piers at Ports Colborne and Maitland, the repairs of which will cost about £3000.

The following Table gives the comparative revenue from the Canal, for the last three years respectively :

	1854.			1855.			1856.		
	£	s.	d.	£	s.	d.	£	s.	d.
Tolls collected at Port Colborne	31,885	0	4	35,645	17	8	43,956	19	0
" " Port Robinson	1,216	18	8	1,386	18	2	1,116	17	6
" " Port Maitland	395	16	8	410	4	2	264	19	3
" " Dunnville ...	2,204	7	3	1,514	3	2	1,535	1	4
" " St. Catharines	550	5	5	503	13	2	604	19	4
" " P't Dalhousie	14,439	5	4	14,968	9	8	17,913	4	3
£	50,691	13	8	54,429	6	0	65,392	0	8
Annual water rents..........	2,097	15	4	2,212	2	10	2,270	5	4
Amount collected on land sales	1,098	6	5	72	16	2	159	0	0
Fines and sums pd. for damages	162	7	6	391	7	6	440	1	3
£	54,050	2	11	57,105	12	6	68,261	7	3

Shewing the gross receipts for 1856 to be 26 per cent. over those for 1854, and 20 per cent. over those for 1855.

The total amount of annual rents for water-power and other property leased on this Canal, is £2270 5s. 4d.

The rents for the year ending 31st December, 1856, are now being collected. The arrears of rents up to 1856 amount to £2,145 4s. 5d. These have been placed for collection in the hands of the Solicitor, who has received of them, since the first of January last, £307 6s.

The amount of the proceeds of sales of lands not required for Canal purposes, disposed of up to 1st January, 1857, with interest, is		£6,978 10 8
The amount paid on this to 1st January, 1857, is		1,731 2 3
		£5,247 8 5
Of this balance there is due by the Welland Canal Loan Company	£2,064 3 3	
And by the Municipality of the County of Welland	3,017 17 1	
		5,083 0 4

Leaving a balance of £164 8s. 1d. due by individuals, which will be paid in instalments, as they become due.

The amount of fines and compensation for damages to the works, imposed on vessels up to the 1st of January, 1857, is	£585 6 7
Amount of do. paid up	440 1 3
Balance unpaid	£145 5 4

A portion of which has been placed in the hands of the Solicitor for collection. For the remainder, being in small sums, it was deemed inexpedient to detain the vessels; but the amounts will be paid shortly after the opening of the navigation.

The partial enlargement of the Harbour at Port Colborne, for which provision was made by the Legislature, has been satisfactorily effected, with the exception of the removal of a few bars, which will be done on the disappearance of the ice. But much further accommodation for vessels there is indispensable, whether as regards the trade of the Canal itself, or that which must be provided for upon the completion of the Railway terminating there. The plan of this harbour was so designed as to be susceptible of extension from time to time, as the increase of trade required; and the improvements contemplated by it embrace not only such extension of the inner harbour or basin, but also an outer breakwater, to be constructed upon a ledge or shoal of rocks which extends from the shore south of the east pier to within about 700 feet of the outer end of the west pier, on which the light-house stands. This breakwater would embrace a considerable area, with ample water for any vessel navigating Lake Erie, and would be a most valuable addition to that terminus of this important work. The inner basin, however enlarged, will not be more than sufficient for the accommodation of the vessels about to pass through the Canal or discharge at the piers ; but in the case of foul weather, a number of vessels frequently run for shelter into Port Colborne, and, until this outer harbour is created by the breakwater alluded to, such vessels necessarily have to run into the inner basin, to the great risk of themselves as well of those which have got in before them.

This outer harbour once made, the inner basin would be secure from being over-crowded ; the passage of vessels from it into the Canal would be facilitated, and safe shelter would be afforded to vessels seeking it in stress of weather.

The work of deepening and widening the Canal, so as to do away with the present summit and adopt Lake Erie as the head water, has been steadily proceeded with during the past year. The increasing trade through it, and the annual failure of the supply of water from the Grand River, imperatively demand that no interruption or delay should be allowed to take place in effecting this object as soon as practicable.

The necessity for largely increasing the capabilities of the canal has been so repeatedly urged in the previous Reports from this Department, that the undersigned now feel called upon merely to state that this necessity is every day becoming more and more urgent.

The very able Report of Mr. T. C. Clarke, Civil Engineer, upon the trade of the West, contains so much information on the subject, and demonstrates so clearly the extraordinary and rapid increase which must take place, and the necessity of anticipating it by enlarging the channels through which it can with certainty be induced, by the adoption of a comprehensive policy, that the undersigned are induced to give the Report in full. (See appendix, letter A)

In determining the manner in which the increased capability of the Welland Canal can be obtained most effectually, it should be considered that the portion of the line requiring the greatest amendment is that from Lake Ontario to the head of the Mountain Lock at or near Thorold; and for this three modes have been suggested: one, to leave the waters of Lake Ontario by the Niagara River, a little above the Town of Niagara, crossing the table-land and then ascending gradually by the valley of the Welland Creek, and entering the canal at or near the head of the locks: another, to follow the line of the present work nearly throughout, from Port Dalhousie, by St. Catherines, to Thorold: the third, to adopt the present line from Port Dalhousie to St. Catherines, and then to proceed in the valley of the Twelve Mile Creek and by Decew's Falls, and to enter the canal somewhere between Thorold and Allanburg.

This last is open to very strong objections, among which are, that the creek is subject to very heavy freshets, which carry down much deposit, and being confined chiefly between high clay banks, there would be no means of discharging the floods otherwise than through the canal, and the sudden ascent at Decew's Falls is such as would render a combination of locks necessary in very heavy rock cutting Secondly, the course of the present works could not be followed as the line of the enlarged canal, inasmuch as there would not be space sufficient for the increased length of the locks; it would unavoidably cause such interference with the present navigation as to make an interruption of the trade necessary, would be attended by greatly increased outlay, and, when completed, the facilities afforded by it would be much inferior to those offered by the first mentioned line, viz., that from Niagara to Thorold.

The undersigned being aware that a careful survey, with estimates, had been made and prepared for this line by Walter Shanly, Esq., Civil Engineer, they had all the maps, reports, estimates, &c., connected therewith transferred to this Department, whereby the necessity and delay of another survey were obviated, and the requisite information was obtained through a most reliable channel.

For Mr. Shanly's Report, see appendix, letter B.

ST. LAWRENCE CANALS.

The several canals coming under this head, constructed to overcome the Rapids of the Galops, Point Iroquois, Rapids Plats, and Farran's Point, were opened on the 28th of April, and closed on the 6th December, 1856, giving a navigation term of 223 days, during which no accident occurred that in any manner interrupted the passage of vessels.

Since the date of the last Report the following works have been constructed, completed or repaired, namely:

The works hitherto known as those of the Junction Canal, connecting the Galops and Point Iroquois Canals, have been completed; the channel has been excavated to a sufficient depth; a regulating weir constructed; the outer face of the new banks thoroughly guarded from the river by a facing of stone, and the inner face also protected from the wash of the canal water. There is now, therefore, a continuous canal from the head of the Galops to the foot of the Point Iroquois Rapids, which several of the passenger steamers made use of in the latter part of the season, instead of contending with the Rapids. The race-way and supply gates referred to in the last Report as being required, are now in course of construction; but in order to perfect this canal as regards the proper regulation of the supply of water for it and for the mills at its lower entrance, a race-way with gates is also necessary at the Galops lift lock, for want of which, to keep up the lower levels, the water has to be passed through the lock-gates, and the working of the mill suspended occasionally.

A new bridge has been erected across the Point Iroquois lock, and the wharf below it has been thoroughly repaired.

The Pier at the head of the Rapids Plat Canal has been completed, and the effect of it in destroying the cross current which impeded the entrance to the Lock is most satisfactory, and much facilitates the ingress and egress of vessels.

The Bridges and Lock gates have been put into a state of good repair; and the spare gates are sunk (for preservation,) in the vicinity of those locks at which they are most likely to be required. The principal works for the present year, that must be provided for, are those for the further protection of the inner face of the Banks, and some repairs of wharves, involving an outlay of about £2100.

CORNWALL CANAL.

This Canal was opened and closed on the same days as the preceding. During the season no interruption to the navigation took place, except for about six hours on the 12th of November last, caused by breaking of a valve in one of the lock gates.

The works of this canal generally being in good working order on the opening of 1856, little expenditure has been incurred on them since that time, and that was confined to the ordinary light repairs, such as cleaning outside ditches, re-building slope walls, and occasional repairs to the lock gate machinery.

New lock gates had been substituted where they appeared to be most required. There are now on hand one pair of upper gates and three pairs of lower gates, intended to replace gates that are to be condemned in spring; so that the Canal, on the opening of the navigation, will be furnished with new Gates throughout; and as there will be only one pair of spare gates, three pair more have been ordered.

The extension of the landward pier at the lower outlet, alluded to in the last Report, has been built, and will be a great accommodation to the Trade, by affording facilities for vessels mooring there, when detained by stress of weather or other causes.

The principal works required this year are,

The re-building of portion of the chamber wall of the guard lock, which was built of wood and is now in a decayed state.

The re-building of the superstructure of the piers at the upper and lower enr ances.

The embankment in rear of the Guard Lock to be further protected with stone, from the strong current of the River which sets against it.

The slope walling on the north side of the Guard Lock, about 1600 lineal yards, to be completed, to prevent encroachment on private property.

A house to be erected for the Superintendent, and another for the bridge tender. These, with the pointing of some of the Lock walls, and other trifling repairs, constitute all that is necessary for the proper maintneance of the works for the present year.

About the middle of January last an extraordinary rise of water in the River at the lower entrance of the canal took place, reaching to a height of twenty-four feet and a half above the ordinary summer level, being thus six inches over the surface water in the level from which the mills derive their supply. It carried large masses of ice into the canal, which completely covered locks numbers 15 and 16, with their gates &c. &c. It is believed that the gates of Lock No. 16 are uninjured, with the exception of some damages to the hand-rails &c.; but the masses of ice still remaining on Lock No. 15, prevent any satisfactory examination from being made as to the state of its gates, &c.

BEAUHARNOIS CANAL.

The navigation of this canal was opened on the 1st of May, and closed on the 1st of December, 1856, thus giving a working season of seven months. The trade was interrupted on the 10th and 11th of June, while a pair of gates destroyed by a steamer was being replaced (by a new one.)

Early in April last the water was drawn off, for the purpose of removing some slides in the banks, bars, &c., as well as with the view of more effectually securing the mitre sills of the locks, one of which had been displaced the preceding year. But owing to the quantity of ice which remained on the bottom, these works were but partially effected when it became necessary to fill the canal. The work so performed, however, much facilitated the passing of vessels during the year, and admitted of a dredge being put to work to remove the bars more completely, without interfering with the trade.

The operations of this dredge were continued for the remainder of the season; but it will require further dredging during the greater part of the coming summer to bottom the canal perfectly.

During the past season five pairs of new gates and one pair of repaired gates have been substituted for those worn out or destroyed by vessels. It will be necessary as soon as the ice will admit of it, prior to the opening of the navigation, to replace three pairs of gates in addition, for which purpose there are gates on hand; and the gates now being repaired or constructed will give a stock of three full sets to meet any emergency.

The dyke at the head of this canal, alluded to in the previous Report, has been completed, and fully answers all the purposes contemplated in its construction. It not only prevents the river water from flooding the low land to the south, but it has been the means of rendering useful several thousand acres of the Seigniory hitherto considered worthless and unprofitable, due credit for which should be given in the arbitration for claims set up by the Seigniors for compensation.

The principal works of maintenance, &c., to be effected this year are, the repairs of two of the bridges now in progress, the pointing, painting and general repairs of the lock-houses, and the erection of a storehouse for canal property, such as tools, lock machinery, &c.

LACHINE CANAL.

The navigation of this canal for the year 1856 commenced on the 1st of May, and closed on the 3rd of December, during which period the business was uninterrupted. The increased trade tells severely in the cutting up of the wharves, which now require much repair. This must be effected before the commencement of the spring trade. The stringers in many places are completely decayed, and the planks worn out.

Since the date of the last Report, about 160 feet of wharf has been constructed on the principal basin, immediately below Wellington Bridge, on the south side. It is used chiefly for the trans-shipment of railway and pig iron and other heavy articles. Two hundred feet of new wharf was also built on the south side of the canal, below St. Gabriel's Lock, for the convenience of the important manufacturing establishments in that vicinity. Still, very much further shed and wharfage accommodation is indispensable to meet the wants of the trade.

It is proposed to resume immediately the portion of the front of the basin that had been temporarily appropriated to the uses of the Grand Trunk Railway Company, for the landing of their rails, &c., and to wharf the front of it for general purposes. Also, to re-model the basin hitherto occupied by Mr. Ostell; to construct a commodious wharf around it, and a mole in the centre of it, 150 feet wide, with a range of sheds on each side, thus giving four lines of wharf about 600 feet in length each and 1,200 feet lineal of shed, which, from the position of the basin, and the number of avenues to it, will prove an important addition to the wharfage accommodation.

The possession of the Island above St. Gabriel's Lock it is proposed to resume, and to improve it so as to render it serviceable as a convenient place for the trans-shipment of manufactured lumber, an article which, in the exports of the Province, now occupies a very important place.

The principal work of repairs to be attended to this year, independent of the wharves already specified, are:

The repairs to the pier at the lower entrance of the canal, injured by the ice in December last.

The removing of the upper portion of the guide piers in the basin at Lachine, and the repairs of part of the south pier wall.

The walls of locks Nos. 3 and 4 leak much, and the mortar, in some places, is so completely washed out from the beds and joints, that several of the face stones have been found out of their positions. It will be necessary, therefore, to take down portions of the recess walls at both ends of the locks, and to re-lay them in cement, as low as the bottom of the upper level.

To permit the effecting of these repairs, and to have the channel cleaned out, it will be necessary to empty the canal about the end of this month. Upon the state of the weather, however, must depend the selection of the most fitting time for discharging the water, as well as the length of the period during which the canal must be kept emptied, which, it is believed, will not exceed three weeks at furthest.

The extension of the river piers at Lachine has progressed slowly during the past summer; but a large proportion of it being carried to its height, and the remainder of the cribs sunk, there is no reason to apprehend that the entire will not be completed this ensuing season.

Such of the old lock gates as have not been replaced will be taken out and good ones substituted in lieu of them, before the opening of the navigation. After supplying these gates, as there will then remain on hand but three pairs of lower spare gates, steps have been taken to secure two pairs of additional spare gates without delay.

The necessity for the several additional works recommended in the last Report from this Department, but for which no appropriations were made, is every day becoming more urgent. The principal of them are :

"The widening and deepening of the canal through the rock cutting ;"

"The construction of regulating weirs at locks 3 and 4. A regulating weir at the upper end of the race way leading to the mills on the north side of the canal at St. Gabriel Locks ;"

" An extensive Boom with sufficient gates and mooring piers at the upper entrance to the canal."

" The erection of a good store-house for the storage of the various articles for the Provincial light-houses for canal purposes, &c ;" and

" The erection of Lock and Bridge Tenders houses."

For all of which estimates shall be duly submitted.

The Department is now in treaty with parties for the immediate erection of the buildings &c., necessary for the effective lighting of the canal, its wharves, locks, and bridges, with gas, the importance of which the undersigned have at all times duly appreciated : and they trust that they will be enabled shortly to carry out this improvement on more advantageous terms than have hitherto been offered.

RIVER RICHELIEU.

The navigation through the St. Ours Lock was opened on the 18th of April, and closed on the 2nd of December, 1856. It was interrupted but once during the season, and that only for a few hours, while one of the cables which suspend the lock gates was being replaced.

The abutments of the dam have been protected; the centre and most defective portions of the lower apron to it secured; and such other parts of the works as most required it have been repaired.

A close examination of the works connected with the dam was made last season, during low water, and the main body of it was found to be in much better condition than what the appearance of the upper portion (washed away,) indicated.

The principal matters requiring attention this season are :

To secure the Piers above and below the lock by a crib, to be sunk at the extreme end, and to receive the shock of vessels or of the ice which shoves heavily there ;

To provide a new set of lock gates, as the present ones shew symptoms of coming decay ;

To complete the repairs to the apron, as commenced, and to protect the dam side with stone.

CHAMBLY CANAL.

The Chambly Canal was opened on the 28th day of April, and closed on 1st of December, 1856, during which period the navigation was uninterrupted.

The repairs of the upper recess walls of locks Nos. 3 and 6, the necessity for which was stated in the last Report to be most pressing, were effected early in the year, and by their means the Canal was kept in operation during the season; but the lower recesses of the same Lock, and the walls generally of lock No. 5 are in such a state as to require to be taken down and re-built, so soon as the weather admits of it, otherwise it will not be possible with safety to open the navigation in spring.

In the several annual reports from this Department, since 1852, up to the present, the works of this Canal have been represented as being " in a very ruinous condition," that " locks 2, 3, 4, and 5, were in so bad a state as to render it necessary to rebuild them," and that " to put the Canal into an effective state even " in its present insufficient scale would require a very large expenditure ;" in short that the whole of the works, with the exception of the Guard Lock and the combined locks, (built under this Department,) were so defective and unsafe as to render much outlay short of that of reconstruction unadvisable, and that such reconstruction could not be recommended until the important question as to the line and construction of a Canal to unite the St. Lawrence with Lake Champlain had been decided by the Legislature. This subject has been frequently brought under the notice of the Legislature by the Reports of this Department and otherwise, but as it is still in abeyance, further outlay on the repairs of the Chambly Canal cannot be postponed without involving the stoppage of the trade through it.

The great floods consequent upon the late thaw, caused considerable damage to the embankments.

The chief works of repairs now indispensable are :

The taking down and rebuilding the lower recess walls of lock No. 3 and No. 6, and the rebuilding of lock No. 5, as above stated.

The repairs of the breaches in the embankments, above adverted to, and some other repairs of more consequence, involving in all a cost of between £2000 and £3000.

THE OTTAWA WORKS.

(*Navigation.*)

Hitherto the only completed works connected with the artificial portion of the navigation of this river, conducted by and under the control of this Department, were the Lock and Dam at St. Anne's. To them, therefore, and to the works then in progress to connect Lake Chaudière with Lake Chats, the last report was confined; but, the Ordnance Canals having since been transferred to the Province, it is now necessary to include them under this head.

In ascending the Ottawa, the first work met with for the improvement of the navigation are those at St. Anne's, consisting of the lock and dam already adverted to.

ST. ANNE'S LOCK AND DAM.

This part of the navigation was opened on the twenty-fifth of April, and continued without any interruption until the first of December, 1856.

The works connected with this Lock are in a good state generally; but the upper portions of the guide piers require to be renewed, and three additional ones built.

Spare gates have been provided, and are delivered in the vicinity of the lock.

A house for the lockman, and a Collector's Office should be built.

The pier, the construction of which was rendered necessary and the cost agreed to be borne by the Grand Trunk Railway Company, in consequence of the injurious direction their works gave to the current at the entrance to the Lock, has proved very advantageous to vessels, whether entering or leaving.

The deepening and enlarging of the channel proceeds satisfactorily, although the operations are necessarily tedious, in consequence of the nature of the rock, which it is found very difficult to bore, as well as from the work being wholly under water, and subject during the season of navigation to repeated interruptions by the passing of vessels.

To avoid these interruptions as much as possible, the boring and blasting were continued throughout the winter, and the stone so detached will be removed on the ice leaving the river. By these means a channel of from 50 to 60 feet in width, and of a depth not less than 5½ feet below ordinary low water mark has been obtained, both above and below the Lock.

CARILLON AND GRENVILLE CANALS.

In proceeding up the river, the next works that present themselves are the small Canals generally known as the Ordnance Canals, which were constructed under military authority, to overcome the rapids on that portion of the river. Prior to these Canals being surrendered to the Province, many memorials had been addressed to this Department by parties engaged in the Ottawa trade, representing the serious obstructions caused to it by the want of uniformity in the scale upon which the locks had been built, and the ruinous state of the works. But until they were placed under the control of this Department, no action could be taken by it in the matter.

Immediately upon the general survey of the Ottawa, to ascertain how far it was practicable, at a commensurate expense, to open by it an uninterrupted water communication from Montreal to Lake Huron, being ordered, Mr. Walter Shanly, Civil Engineer, to whom was entrusted the general direction of the survey, received the necessary instructions from this office, and by them his attention was directed to the state of the Ordnance Canals.

Pending his general examination of the entire route, he was requested to report specially on the condition of these Canals, and to state what work was necessary upon them prior to the opening of the navigation, as well as during the after season, to prevent interruption to the trade. (See Appendix, letter C.)

From Mr. Shanly's report upon these Canals, it appears they are in three sections,—namely:

The *Carillon*, 2 miles and $\frac{9}{100}$ of a mile in length, with—3 locks.

The *Chute-à-Blondeau*, $\frac{16}{100}$ of a mile in length, with—1 lock.

The *Grenville*, 5 miles and $\frac{3}{4}$ in length, with—7 locks.

The sectional area of the Canals is irregular, that of the Grenville being the least; the width of bottom at 5 feet below water surface being generally but fifteen feet.

The Locks are of different dimensions, but the serviceable capacity of the entire may be considered as restricted by lock No. 11, to 19 feet 3½ inches in width, and in length by lock No. 9, to 106 feet 8 inches. These dimensions would limit those of the vessels to about 18 feet 6 inches in beam, and 95 feet in length over all. The maximum draft of water is assumed at 5 feet; but at seasons of low water boats cannot carry through that depth.

The Locks are all more or less out of repair; but numbers 1 and 2 on the Carillon section, are in a very dilapidated state,—the walls of lock No. 1 overhanging, and those of lock No. 2 so leaky as to admit of the water running through them. None of the lock walls are water-tight, and this has been the case so long that most of the cement or mortar in the masonry has been washed out, and a current of water runs at the rear of all the chambers.

Some obstructions of another nature exist, viz:

At the head of the Grenville Canal, from a deposit of gravel and small boulders.

At the foot of the same a ledge of rock, which had never been properly removed, crosses the entrance.

At the foot of the Chute-à-Blondeau an obstruction is caused by the stones of the protection wall thrown down by the ice lying in the channel; and at the head of the Carillon Canal there are the remains of an old clay dam. This latter canal ascends from the Ottawa, and its summit is supplied from the North River, by a feeder, at the head of which there are dams across that River. These dams consisting merely of loose stones thrown in, which are subject to be washed away, have to be renewed every spring, and in consequence of the insufficiency of them the navigation is much impeded every season.

Mr. Shanly estimates the outlay necessary to put these works into a condition likely to serve for the next five years at £6655.

Instructions have been given to have such small repairs effected prior to the opening of the navigation, as will remove some of the evils complained of; but it is, manifestly, not desirable to incur any large expenditure on these Canals in their present state, as the dimensions of the Locks should be made to correspond with those of the St. Anne's Lock, or with such as may be finally determined upon as most suitable to the navigation of the Ottawa throughout,—to determine which, the important survey upon which Mr. Shanly is now engaged was instituted.

In ascending the River, the next works of importance to improve its navigation are those required to overcome the falls at the Chaudière and the Rapids immediately above them, a survey and estimate for which had been made under the direction of this Department about two years since, based upon the principle of the locks being of the same dimensions as that at St. Anne's; but under present circumstances, and until the result of Mr. Shanly's exploration of the entire line to Lake Huron are known, and it is ascertained thereby to what extent natural facilities present themselves for the opening of such a communication, and the most suitable dimensions for it, any further observations on the works here required would be of no practical use.

CHATS CANAL.

The extensive tract of country on both sides of the Ottawa above the City of Ottawa rapidly becoming settled and improved, the trade upon the Chaudière and Chats Lakes has correspondingly increased, and to overcome the obstructions to navigation in the River between these two lakes, the construction of the Chats Canal was undertaken, on the same scale as that at St. Anne's, which was then intended to have been adopted for the Carillon, Grenville, and Chaudière Canals also.

All the serious difficulties stated in the last Report to have been found in the prosecution of this work, continued to present themselves even in a more formidable manner and to a greater extent than was apprehended. The prices at which the work was undertaken proved to be wholly inadequate; the amounts of the monthly returns, based on these prices, and the quantity of work done were, in many instances, not a fourth of the actual expenditure. To enable an idea to be formed of the difficulties in removing the rock, of which much the greater portion of the excavation consisted, it is only necessary to state that in a great part of it from fifteen to twenty well-tempered cast steel drills were "used up" and had to be re-sharpened, without the sinking of a hole of more than one inch in depth being effected.

During the season the lock pits have been examined chiefly to the required depth; a large portion of the prism of the Canal has been formed, and a considerable quantity of the stone for the locks quarried, cut and prepared.

After having struggled most pertinaciously against the difficulties of the work, having expended a large amount of private means and exhausted their credit, the contractors found themselves under the necessity of representing that they were unable to proceed further unless an advance was made to them to enable them to pay the men to whom they were then in arrears, and unless their prices were raised.

The subject was brought fully under the notice of the Government, and after much consideration it was determined on, as the best step to be taken to amend the contract, to have the various classes of work measured and estimated at fair remunerating rates by the Engineer of the Department, and to pay off the Contractors accordingly. By adopting this course, the proceeding with the masonry is suspended, and no alteration made necessary or extra cost involved, in case locks of greater dimensions are ultimately adopted, should the results of the general survey render it expedient to do so; all the remaining portions of the works are suited to either scale.

A settlement upon this basis will be made with the contractor, so soon as the Engineer is enabled to furnish the required estimates.

OTTAWA WORKS.

Connected with the passing of lumber.

The various slides, dams, booms, raft channels, &c., constructed along the course of this River and its tributaries, for facilitating the lumber trade, have been maintained in an efficient state of repair throughout the season, at comparatively very small cost, when their extent, the difficulties of their position, and the floods, &c., to which they are exposed are taken into account.

The outlay has been chiefly confined to ordinary repairs, such as the repairs and renewal of such portions of the works as are subject to injury from the action of the passing timber or ice. Considerable improvements have also been made or are in progress, tending importantly to the safety of the works, and the facility of sending down the timber.

An additional boom and some minor alterations have been made to the Mountain slides, on the Ottawa, and substantial crib-work is being substituted in lieu of the trestle work under the slide at the High Falls on the Madawaska River. The dams and channels of that River are also being improved, and these works are in such a state of forwardness as to leave no doubt of their being fully available on the opening of the spring business.

The painting and repairs of the Union Suspension Bridge over the Ottawa, at the Chaudiêre Falls, referred to in the last Report, have been duly attended to.

Mr. Merrill, under whose very efficient management and superintendence these works have been directly constructed and maintained, reports that the various works on the Ottawa River and its tributaries were never in better condition than they will be on the opening of spring; and that the cost of maintaining them so, for the whole of this year will probably not exceed £400.

He urges, in the strongest manner, the necessity for additional improvements, among the principal of which are: The construction of a slide on the north shore of the Little Chaudière; a strong retaining boom near the mouth of the Black River; a boom and piers at the Remous rapids; three cribs in the Chats rapids, for rafts to be made fast to, as anchors do not hold there; the several improvements of the Petewawa River, (referred to in the last Report); and the wing dams and other works so much required to enable late timber to be got down the Lower Ottawa, at the Long Sault and Carillon Rapids, in the Ecores and Desprairies Rapids, and in the Little River, back of the Island of Montreal. For these works, nearly all the parties most extensively engaged in the lumber trade have repeatedly memorialized. They expressed their willingness for the imposition of reasonable tolls; and there is no doubt that the revenue from the works will shortly repay the outlay, as all the other works of this nature on the Ottawa and its tributaries have done. The cost of these will form an item in the general estimates to be shortly laid before the Legislature for their decision.

Besides the foregoing, the building of a wing dam above the Suspension Bridge, in order to maintain a uniform head of water at the Hydraulic properties there, is the only work of importance represented to be necessary that calls for special notice.

GATINEAU.

The boom and works at the mouth of this River are in an effective and safe state. A small pier being much required to moor log rafts to before the opening of the season, the Superintendent has received orders to frame and sink it.

THE RIDEAU CANAL.

But a few days having elapsed since intimation was given to the undersigned that the works of maintenance and repair of this Canal were placed under the management of this Department, they have had no opportunity of having a thorough examination made, so as to ascertain in what state of repair it is. Indeed, independent of there not having been time for it, the season of the year and quantity of snow would have rendered any detailed and satisfactory survey of it impracticable.

The following is an abstract of information taken from the Report of Col. Coffin, Ordnance Land Agent:

The Office establishment on the Rideau and Ottawa Canals is divided into two branches, viz.:

The Storekeepers' Department, which consists of—

" P. Monsell, Store-keeper	£456	16	11	sterling.
" J. McDonald, First Clerk	243	19	9	"
" J. Duff, Second do	203	19	9	"
" T. Forester, Bailiff	85	8	4	"
" J. Callaghan, Office Keeper	45	12	6	"

Engineer Department.

" C. H. Harvey, Clerk of Works	£311	4	4	sterling.
" P. Cooke, Messenger	60	9	10	"

"The total of the annual Salaries of the Officers of these two Departments amounts "to £1407 7s. sterling, equal to about £1710 13s. 8d. cy."

Under the head of the Engineer Department, however, Col. Coffin has not included the pay and allowance of the Royal Engineer Officer, under whose immediate control and direction these works have hitherto been, and who has thus filled the office of Engineer to the works.

Besides the departments above detailed, there are,—"The Canal Establishments," consisting of thirty lock masters, fifteen permanent labourers, and fifty-seven temporary labourers, or those employed during the season of navigation only.

The aggregate annual expense of the Rideau and Ottawa Canals is stated by Col. Coffin to be as follows:

Office Establishment	£1710	13	8	
Canal do.	4814	0	6	
Repairs	3890	0	0	
Expenses, fuel, &c	150	0	0	
	£10564	14	2	cy.

The average revenues of the Canals, for the last three years, have been as follows:

Rideau Canal	£1636	9	3
Ottawa Canal	856	5	8
Wharfage, &c	66	6	2
	£2559	1	1

The excess of the expenses, therefore, including the charge for the Engineer, omitted, may be taken at about £8500 over the revenue. It is apprehended that a considerable sum will be required to place the works in a proper state of efficiency; on the other hand, it is believed the cost of management can be reduced, and so soon as the works are properly repaired the maintenance will be less costly.

The foregoing statements agree very closely with the results arrived at by the Assistant Commissioner of Public Works, upon an examination of the Rideau Canal, and reported by him about three years ago.

In Col. Coffin's report are embraced some suggestions for the future management of these Canals, which the undersigned will have the honor of bringing under the attention of Your Excellency in Council.

River Lights and Beacons.

The various light-houses and other works usually embraced under this head have been maintained in an efficient state during the past season. The repairs made to them were of a more general character than those of the preceding years, and, in consequence, the aggregate outlay was greater. The nature of these repairs was of the ordinary description, with the exception of those to the light-house at Grosse Pointe, Lake St. Francis, and that on Pelée Island, Lake Erie; the former of which required a general renewal of the superstructure, while considerable expenditure upon the latter was rendered necessary by the great storm which visited Lake Erie in October last. during which the waters encroached so far upon the Island as to undermine the foundation of the house, and endanger its existence.

The light-house at Coleman's Creek, between Kingston and Prescott, and that on the Scotch Bonnet, in Lake Ontario, both of which were in course of erection at the date of the last Report, have been since completed and brought into use.

It is proposed to remove the framed light-house now standing on "Fiddler's Elbow" to "Hemlock Point" on Wolf Island, about midway between Gananoque and Kingston, a recommendation to that effect having been made by the captains of the steamers generally.

An appropriation was made by the Legislature, last session, for the erection of a light-house at the entrance to the Bay of Kingston, to assist mariners in keeping clear of the dangerous reef called Snake Island Shoal. The commencement of this work was deferred until the best information could be obtained as to the most fitting site for the light; and, from the representations of several intelligent nautical men, as well as of the principal proprietors of the steamers and other craft plying to and from Kingston, it has been decided to place it on the south-easterly point of the shoal, at a place commonly known as the "*wreck bar.*" A contract has been entered into for the erection of this light-house, and the work is to be proceeded with at once.

The light vessels in Lake St. Louis and Lake St. Francis were, by constant care and attention, kept in an available state during the past season; but they are now so much decayed as to require considerable repair to make them answer for the present year, on the expiration of which they will be utterly unserviceable.

In lieu of these, fixed lights on massive piers or floating lights in new vessels, could be substituted; but as the construction of the piers, &c., would cost about three times the amount which would be sufficient to provide the best class of iron vessels, the adoption of the latter is, of course, most advisable.

The works of the light house pier on the extremity of Pointe Pelée Reef, have been beset with difficulties from the commencement, as was anticipated; but the continuance of more than ordinarily high winds and rough water, upon Lake Erie, from the middle of August to the close of the year 1856, has retarded the prosecution of the works much more than was calculated on, notwithstanding every possible exertion being made by Mr. Scott, the engineer specially in charge of the work, and by the men under his direction. The importance of the establishment of this light is made more and more obvious by the wrecks which occur annually on this dangerous shoal.

Some deviation from the mode of construction originally proposed, has been found necessary, consisting chiefly in the adoption of a large *caisson* for the foundation of the light-house.

From the long experience Mr. Scott has had in such works, the undersigned entertain no doubt whatever of these being carried to a successful termination early this season.

After enumerating the many difficulties he had to contend with during the season, Mr. Scott reports as follows:

" Independent of all these draw-backs, the works have progressed rapidly for " the time and the numbers employed; and the manner in which the work is put " together insures its being one of the best pieces of heavy framing ever put " together on this continent.

" Reviewing the whole work after an experience of four or five months with the " character of the Lake during a very stormy season, I am the more fully confirmed " in the opinion that the structure now in progress is the best adapted for the pur-" poses it is designed for, and I have not the smallest doubt of a successful termi-" nation of my labours."

LIGHT-HOUSES, LAKE HURON.

The present state of these light-houses is as follows:

Christian Island.—The dwelling-house is completed, and the tower ready for the setting of the lantern, &c. The lantern and lighting apparatus have been received from France, and are now in this city. They shall be forwarded and placed in their positions immediately after the opening of navigation.

Nottawasaga Island.—The dwelling-house and light-house tower are erected and are equally advanced with those on Christian Island. The lantern and lighting apparatus have also been received here, and will be sent up and placed as soon as the weather will admit.

Griffith's Island.—The foundations are prepared, and the stone is all quarried and dressed. If proper exertion is made, the house and tower will be completed by the first of next August, by which time it is expected the lantern and lighting apparatus will be delivered, so that the light may be exhibited in the Autumn.

Isle of Coves.—The dwelling-house and light tower are completed and ready for the setting of the lantern, &c., when they arrive. The light to be exhibited here is to be a flashing one, of great brilliancy. During the past season a light was maintained here on a temporary structure, it being indispensable for the safety of steamers entering Georgian Bay by this channel.

Chantrey Island, off Saugeen Harbour.—The materials for the dwelling-house are prepared. The shaft of the tower is carried up to within ten feet of its full height, and the materials for its completion are delivered. The whole will be ready for the fixing of the lantern and apparatus on their arrival.

Point Clark or *Pine Point.*—The cut stone for the house and tower is prepared, and the other preparations are so advanced as to insure the completion of the structures this season.

The other works of this nature contracted for are as follows:

A house and tower at the Mississagua Strait; one on Isle St. Joseph; one on Clapperton Island, and one on Badgley Island. If to these be added one on the "Ducks" Islands, about midway in Lake Huron, and lying directly in the course of vessels making for Georgian Bay, there will be no reason to complain of want of lights on the Canadian shores of Lake Huron.

The prosecution of these works, so far, has been attended with a great deal of difficulty and loss. In some instances the cut stone and sand have to be brought distances varying from 40 to 150 miles; the cement also involves a carriage of nearly 300 miles to each place. During the progress of the works two steamers, a schooner, and two scows were totally wrecked, and much loss of timber, &c., was incurred. For the completion of the remainder, satisfactorily and with due despatch, considerable outlay upon steamers, scows, &c., &c., will be necessary.

The work of the break-water pier at Chantrey Island, in connection with the light-house there, is completed; it has withstood the heavy storms to which it was exposed last fall, without sustaining any damage, and the amount of shelter and other benefits already derived from it, although carried out to a very limited extent, establishes the fact beyond doubt that if an additional length of from 1000 to 1500 feet of break-water is constructed, a most valuable and capacious asylum would be created, for which vessels engaged in trade on that otherwise very much exposed coast could run in stress of weather. 500 feet of such extension might be first undertaken, and as the benefits from it were manifested, the expediency of further extending it would be decided. About 300 feet of the pier at Inverhuron has been sunk, reaching to water about fourteen feet in depth. Owing to the nature of the bottom, the cribs have subsided a good deal, and they still continue to go down; it was considered desirable, therefore, not to carry them up to the full height until after the ice leaves the lake, and they have withstood some more storms.

At Kincardine, or Penetangore, two large cribs had been sunk to form the centre portion of a main break-water, intended to protect the works of piers to be continued from it, which were to afford shelter to vessels lying under their lee. One of these cribs was well filled, the other not so, when the place was visited by a very heavy storm in September last, which broke them up and drove them ashore. After this occurrence, the principal parties (including the Reeve and Municipality) interested in the formation of accommodation for vessels there, pressed for the expenditure of the appropriation upon the carrying out of piers from the shore, and the opening of a channel across the bar, so as to give access from the Lake, directly between the piers, into the inner basin or river. An arrangement to that effect was made with the contractor accordingly. It is to be apprehended that the entrance will be subject at times to obstructions by silt; but this will be obviated to a great extent if the piers are hereafter carried out to a greater depth of water. Under any circumstances, however, it is believed that recourse must be had to dredging.

The expenditure of the small amount appropriated towards the construction of a pier at Meaford was entrusted to the Municipality, who added considerably to its amount from taxation upon themselves. The work has been carried out to the extent contemplated, and is reported to be substantially performed.

THE NARROWS BRIDGE.

A Bridge was built some years ago by the Province across "The Narrows" of Lake Simcoe, and a draw-arch was constructed in it to allow of the passage of the vessels then navigating the Lake. As the surrounding country became settled the trade increased much, and the steamboats now engaged in it are of such a size as to render their passage through the draw-arch very difficult, in fact impossible, without constantly coming into heavy collision with it; partly from which cause, and partly from decay of materials, this portion of the Bridge was in such a state of ruin that it became necessary to undertake the removal of one of the abutments, the remodelling of the other, and the general repairs of the Bridge and improvement of the channel leading to it.

The channel will be effected by the first of next June; the timber and other materials for the new swing-bridge, with its piers and abutments, are being delivered, and it is expected that the entire will be completed by the first of July, and that no stoppage to the navigation will be caused by the prosecution of the works.

RIVER TRENT WORKS.

About the close of the season, the Assistant Engineer of the Department was sent to examine and report upon the state of the works at Buckhorn and Bobcaygean. The commencement of these works, their character, and the objects for which they were undertaken, have been described in the last Report to the Legislature, which also explained the more than ordinary difficulty which had to be contended with in unwatering the works and getting in the foundation. These difficulties continued, and it became necessary to lay the whole of the masonry in cement, and to keep the pumps going to the last. It was stated in the report referred to, that the works and preparation of materials were then so advanced as to enable the contractor to calculate on being able to complete the entire lock, with all the dams, mill-races, &c., connected with it, within two months after the weather would admit of the masonry being commenced. Prior to this being the case, a deputation consisting of several gentlemen, either resident or interested in the locality came to the undersigned, for the purpose of representing that if the waters of the Lake were lowered for the purpose of building the lower part of the Lock, before the warm and dry season was over, they apprehended most dangerous effects upon the health of the inhabitants, from the miasma which would arise from the mass of decayed vegetable matter that would necessarily be laid bare. It was stated to them that the suspension of the works would add seriously to the cost of the lock, that it would prevent its being completed this year, and that it would be followed by well-founded claims for compensation by the contractor. But from the very strong feelings of alarm for the health of the vicinity, evidenced by the members of the deputation, the undersigned were induced to instruct the officer in charge of the works that the waters were not to be let off before the tenth of August. The consequence was as anticipated—the contractor was put to much loss, and the completion of the work that year was not practicable.

The report of the engineer upon the state and character of the work is very satisfactory. He states the walls of the chambers and recesses, all laid in cement, to be up to the bottom level of the upper reach; the lock floor and mitre sills, all in their places. The entire of the cut stone for the remainder is quarried and dressed, and lies on the bank, ready for laying. The anchor stones, coping, and hollow quoins, are all prepared. The upper wings are left unfinished, in order to put in the heads of the mill race-ways. The bridge piers are constructed in good ashlar work, and the swing bridge is completed and in place,—the wood work requiring painting only.

The conduit of the canal, for 400 or 500 feet through open rock, is closely sided up with timber and planking, laid in light joints and well spiked. carried up to the top of the bank, and protected with wale-timbers of oak. The bottom of the Canal is puddled, staunched, and double planked. For the remaining portion of it, the natural banks are raised, and the sides and bottom well puddled. The dam at the upper entrance is made staunch and tight,—the lock gates are being framed.

The gravel and filling in front of the main Dam across the river had been removed, in order to repair the planking during the low summer water, after which the filling will be replaced.

The running down of the square timber is generally over by the twentieth of May, after which the descent of the saw-logs takes place, and occupies about two weeks, so that the letting off the water cannot be commenced before the first week in June, nor the masonry before the fifteenth of the same month. If this is permitted, the work will be finished early in August; but if the control of the water is not left so with the contractor, it will be impossible to complete it before Novomber, and much extra expense will be again incurred.

The suspension of the works for such a large portion of the last year necessarily involved the further stoppage of Mr. Boyd's Mills at Bobcaygean. The dams put in to keep off the water, in order to excavate for the bottom of the lock, had interfered with the working of the mills, the two preceding seasons, for which arrangements had been made with Mr. Boyd, and it will now be necessary to come to a compromise with him for the suspension of his business, which must take place for part of this season also. But from the fair spirit hitherto evinced by that gentleman, no difficulty is apprehended in coming to a reasonable settlement with him.

The repairs of the Dam at Buckhorn have been fully effected. The discharge flumes on each side of the river, and the repairs of the slide, are completed, as are also those of the part of the bridge which was contracted for. But the remaining portion of the bridge, nearly 500 feet in length, is now, from decay of material, in a very dangerous state; in fact it has been kept passable during the winter by means of supports from below.

This bridge is built on and framed into the dam, of which it may be considered part; and independent of its importance as being the only means of land communication for a distance of 16 miles between the several newly filling up Townships to the north, and the settled country on the south of the river, it is indispensable for lumbering purposes, and as a means of communication with the piers and slides. Its maintenance is, therefore, unavoidable, and the sum required for its repairs will be inserted in the estimates to be submitted to the Legislature.

The dredging and opening of the new channels contracted for to avoid the awkward bends in the Scugog river, have been satisfactorily effected. The only works which now remain to complete this portion of the navigation are,—the building of a new and enlarged lock at Lindsay, and the deepening of about two-thirds of a mile from the tail of it, through rocks. Also, the improving of the channel in several places between the lock and Lake Scugog, and the construction of two or three landing piers. These are all loudly called for. The present old wooden lock cannot be calculated on even for the season; and it is very desirable that the improvements in the river should be at once authorized, while the dredge and pumping machinery are on the spot,—as the expense will, otherwise, be very seriously increased.

RIVER ST. MAURICE WORKS.

The cost of maintenance and the expenses connected with the works of the slides and booms on this river, have been considerably less during the past season than those of the preceding year,—which is chiefly attributable to the improvements effected in the winter of 1855-6, and to the comparatively low height of the water at the time of the spring floods.

The workmanship having been originally of a good and substantial character, and the plans of the work having been altered and amended from time to time, as experience dictated, it may reasonably be calculated upon that they will continue to be maintained in an efficient state of repair at a moderate annual expense.

The principal works undertaken last season were:

The filling of the main body of the larger dam at LaTuque with stone, and the building of an additional pier in rear of it.

The deepening of the channel through the Managance Rapids was contracted for, and the work carried on as well as circumstances admitted; until, the river having suddenly risen, the operations had necessarily to be suspended until the subsidence of the water next season. The estimate for this work was £300, but the engineer reports that £250 in addition will be required, to blast out certain rocks and clear the channel.

At Shawenegan, some of the works referred to in the last report, and provided for, have been completed, and the remainder are in progress; but here, also, it is reported that the sum estimated and appropriated will fall short of the actual expenditure required by about £250.

At the Grais Falls, the crib slides and other works connected with them have been placed under contract.

At the mouth of the River St. Maurice an additional pier was built in the east channel above the bridge; boom-posts were put up, and the necessary chains, &c., provided.

The undersigned, not satisfied that the large proportion of the expenditure on these works should be carried on by day labour, as hitherto, have insisted that the whole of the work shall be let and executed by contract.

Considerable loss of time has taken place in proceeding with the work of the slide at the Grais, latterly, owing to the inadmissibility of several of the persons offered as security for the due performance of the work by the party to whom it was allotted. This difficulty has been removed within the last day or two.

Upon the advantageous results from these works, apart from the aid they give to the developing of the timber trade of that part of the Province, Mr. Dawson, the engineer in charge of the construction of the River St. Maurice works, thus reports:

> "I would respectfully invite attention to the extraordinary rapidity with which "colonization is progressing in the section of the country more immediately affected "by the works. From the settlements back of Berthier to those in rear of St. "Anne de la Perade, a great movement is being made towards the St. Maurice "territory. Lots are occupied almost as fast as they are surveyed, and it is worthy "of remark that the settlers generally are of opinion that the further back they go "the better they find the quality of the land. The principal new settlements are "those extending back from St. Barnabé and Shawenegan to the west of the St. "Maurice, and from Lac Cossette and the River des Envies to the east. This movement on the part of the settlers has its origin in the demand for agricultural "produce which the lumber trade is creating in the interior; this, it is needless to "say, is due to the works which has rendered the St. Maurice River available to the "enterprise of the lumbermen."

Mr. Dawson adds that he is informed by the Crown Lands Agent that the revenue this year arising from the timber duties, ground rents, &c., will be about £10,000. He also reports further works to the amount of £3,793, to be required for the completion or security of those already constructed. (See Mr. Dawson's Report, Appendix D.)

PORT STANLEY HARBOUR.

The works connected with this Harbour, referred to in the last Report, have been proceeded with but slowly, and in some respects very unsatisfactorily. The cribs forming the base of the protection docking on the west side of the inner harbour having been left by the contractor, at the close of the season, in an imperfect and but partially filled state, and not properly backed up in the rear, the result is that 350 feet lineal of the work has been forced out of its place, part of it upset, and the remainder so much disturbed as to render it necessary to take up and re-sink that whole length.

All this was owing to the negligent manner in which the work was left, which, from not being filled with stone and securely backed, was unable to withstand the thrust of the ice when pressed upon by the flood which came down in February last.

The forming and deepening of the inner harbour was carried on with greater energy during the past year than at any other previous period. Much delay and additional dredging, however, has been caused by the *detritus* annually brought down by the Creek being deposited in the channel and basin; especially in the

Spring of 1856, when the ice jamming above the bridge, the water cut in part a new channel to the westward, carrying with it not less than 15,000 cubic yards of earth, which, with that brought down from higher parts of the stream, cannot be calculated at less than 21,000 cubic yards.

As has been stated in former Reports, the position of this Harbour, situated at the mouth of a stream passing for the most part through a soil of a purely argillaceous character, and subject to very heavy floods, during which a great deal of earthy matter is carried down and deposited in the comparatively still water at the outlet, will ever subject it to obstruction and to silting up, so long as the Basin itself, and the channel between the piers thence to the Lake, form the *debouche* of the creek.

This tendency to silting was further increased, in the first instance, by the contracted space between the original piers.

Upon the late damage being sustained by the works, the Engineer of the Department was sent up to examine and report upon the condition of the Harbor, and he has made an able and elaborate report upon the subject, repeating what has been above stated regarding its tendency to silt up, and giving it as his opinion that permanently to maintain the accommodation required for vessels, one of two courses must be adopted,—first, to prevent the creek from entering the Harbour, and to direct it by a new channel into the Lake, west of the present piers. The objection to this course he points out, truly, to be, that it would be very expensive, inasmuch as the channel would traverse a considerable extent of ground, all laid out in building lots, upon which a high value is set, as the sides of it should be securely lined for their whole extent, and as it should be of capacity to pass the greatest floods.

Besides the question of expense, the small volume of water, in dry seasons, would be insufficient to prevent a bar of shingle from being formed across the mouth of the channel, where it would remain until removed by the next high freshet: the vicinity in the meantime, being rendered unhealthy by the stagnant water which would lie within such bar; and the effect of the cut so directed would soon cause deposit and obstruction at the entrance to the Harbour.

The second course suggested, is, to build a new pier one hundred feet to the eastward of the present east pier, and to remove the narrow portion of the latter, leaving only the outer and wide part it. By these means two entrances, in all about 180 feet in width, would be obtained, and being about equal to that of the inner basin, the Engineer considers the tendency to silt would be much lessened, and that floods, when they take place, would rush equally over all, and thus keep the basin and outlets clear. But inasmuch as the source of this evil, namely, the great amount of *detritus* annually brought down would not be removed, and this *detritus* would necessarily continue to be deposited in the still water of the lake near the mouth of the channel, the undersigned apprehend that, although occasional floods of considerable magnitude might be powerful enough to carry such deposit into water so deep that the entrance may not be for some time obstructed, yet that the ordinary freshets, although they also bring down great volumes of earthy matter, would not, from the greatly increased breadth of the entrance, prove sufficient to carry out the silt which would continue to be deposited within the piers, and thus periodical recourse to dredging be rendered indispensable. Under these impressions, and taking into consideration the large outlay involved in the adoption of such a course (not less than £40,000) the undersigned are not disposed to recommend it, and they are of opinion that all it would be expedient to undertake at present, is to complete the basin as contracted for, extend the western pier moderately, and erect two leading lights upon it, leaving to be removed by dredging any obstructions that may from time to time be caused in the basin by deposit.

It has also been proposed by others, to construct a dam across the creek above the basin, for the purpose of creating a cess pool for the deposit to take place in; but the effect of this would shortly be to fill up the bed of the creek to the level of the dam, thus causing much injury to the property above it,—to interfere seriously with the lower mills on the stream, and to prevent their being reached by bateaux, as they now are.

The undersigned have heard it stated that this creek, at a remote period, entered the harbour by a wholly different channel. If this should be proved to have been the case, it would be a matter well deserving of being examined into, with the view of ascertaining whether the creek could be restored to such its original course, there being no doubt that the efficiency of the Harbour could in that case be more effectually and cheaply secured.

' The position of this harbour is every day becoming of greater importance, it being the outlet of a very extensive tract of country second to none in the Province in fertility and rapidly increasing settlement and productiveness.

BURLINGTON BAY CANAL.

The additions to the piers at both ends of this Canal, which were in progress at the time of the last Report, have since been carried out to the full length, and raised to the intended height. Considerable outlay upon repairs was unavoidable during the past year.

The most defective parts of the old superstructure have been removed and rebuilt; but some other portions of it, in consequence of decay of material and subsidence, require to be taken down and renewed.

On the eighteenth of July last, the light-house tower and keeper's house were destroyed by fire, supposed to have been caused by sparks from a passing Steamer. A temporary light was immediately substituted, and was maintained during the continuance of navigation. The erecting suitable buildings is now necessary,—the cost of which will form an item in the estimates to be laid before the Legislature.

It was necessary, also, to provide a new ferry scow for the crossing of vehicles, &c.; as well as a smaller one for the ferrying of foot passengers.

TUG BOAT SERVICE ABOVE MONTREAL.

The amount of Tug service performed during the past season between Lechine and Kingston has exceeded that of previous years, and, from no complaints having been received, the undersigned have no reason to believe that it was not performed in an efficient and satisfactory manner.

PIERS BELOW QUEBEC.

The Piers at Berthier and L'Islet, since they were completed and taken off the hands of the contractor, continue in a good and efficient state. The piers at Malbaie, at Eboulements, and at Rivière du Loup, having suffered somewhat at their extreme outer ends by the action of the ice, to which they are much exposed, it was considered necessary to protect those ends and each of the sides, for about 20 feet in length, with oak or rock-elm planking. The exposed angles have also been well secured with iron straps. Thus protected, it is expected that these several works will remain in a good and safe state for a number of years, without further repairs.

To the pier at Pointe aux Orignaux, a wing of about 120 feet in length has been constructed, on the up-stream side of the extreme outer end. The fenders were put on, the mooring-posts placed, and the floor was planked; and the entire of the work was completed before the winter set in, with the exception of a few iron straps at the angles. These the high spring tides which occurred at the close of the work prevented being put on; but they will be attended to when the Spring opens.

At Rimouski pier nothing was done during last summer. The construction of a wing, as before recommended, is considered to be very important, not only for the convenience and safety of vessels approaching the pier, but also from the additional strength and security which the pier would derive from it.

The erection of a small light-house and the fixing of two cranes of moderate power on each of the above mentioned piers, are considered essential for the safe access to and convenient uses of them. A building should also be provided at each, for the accommodation of a person whose duty it should be to maintain the light, have charge of the supplies connected therewith, and collect the wharfage, a rate for which should be established. The necessity for such an appointment at each pier was urged in the last Report, as being evident from the manner in which they are abused by parties kindling fires on them, and otherwise endangering their existence, for want of proper local authority to prevent such trespass.

LIGHT-HOUSES BELOW QUEBEC.

The Keepers' houses at each of the respective places where light-houses are being erected may be considered as completed, as also the light towers at the West point of Anticosti and Cap Rosier, which are ready for the setting of the lanterns and fixing of the lighting apparatus.

At Pointe d'Amour and the Island of Belleisle the towers were, at the period of the last reports, completed, with the exception of the upper story and light-room; and it is expected that by the time the next report can be received, they also will be fully ready for the erection of the lanterns and lighting apparatus.

The works of all these buildings have been executed with more than ordinary care, of the best materials, and in the strongest and most substantial manner. The remoteness of most of them from all settlement, their very exposed positions, and the great difficulty of access to them, rendered it doubly necessary that they should have been so constructed.

As stone fit for dressing and suited to the exterior of buildings in such situations could not be had in the vicinity of any of them, and as the construction of wharves or places to land, if such stone was brought from a distance, would have been attended with great expense, it was determined that the exteriors should be built of two tiers of the best class of English fire-brick, laid in cement.

Instead of the ordinary stone masonry of which it was originally specified the interior face of the works should consist, it was soon found desirable to substitute well dressed and closely jointed *stone work*; by doing so a much better description of work was had, and useful winter employment was provided for the men, who, it was decided, should remain there, and for whose safety and comfort ample provision was made, the experience of the first year having shewn that nearly half the working season was lost between the early date at which the men had necessarily to be removed, to the time when it was possible to convey them again to the places of their occupation. The expense of the wages and maintenance of the men so wintered was therefore, in some degree, covered by the materials prepared by them during that time. The necessity of plastering the inner surface of the walls was also obviated, a matter of no little consequence, when the distince from which lime and sand had to be procured, and the difficulties of landing materials of every description and then getting them up from the shores to the sites of the works, are taken into consideration.

As stated in the last Report, extraordinary difficulties had to be encountered in the prosecution of the works. The great bulk of the materials had to be transported a considerable distance, and then landed on a bare unsheltered bank, against which a heavy rolling sea constantly beats, involving much risk to life and property. In very many instances, when the vessels with supplies, materials, &c., had reached the vicinity of the works, it was found impossible to land, and delays of from two to six weeks have frequently taken place before it was safe to approach them. Ruinous loss of time both of men and horses was thus unavoidably caused, and since the date of the last report six vessels of from 80 to 100 tons, and one sea-going steamers, with all their cargoes, have been completely lost. These difficulties are more or less experienced at all the works, but more particularly at the island of Belleisle, on which a large establishment of men and horses had to be maintained. Independently of the loss of time caused by the impossibility of the vessels approaching the island to land materials and stores with any degree of regularity, the whole of the horses were lost, the steamer in which fodder was sent for them having been wrecked, and the island being so utterly barren as to produce no grass, &c., of any description, to keep them alive. The poor brutes were thus starved, and before relieved by death from their sufferings became mad and attempted to devour one another.

Towards the close of the year, Mr. Gauvreau, the immediate Superintendent of these works, was sent down in another steamer to make a general inspection, and, on his way down, having met with the wreck of the steamer Doris, above adverted to, he at once proceeded to Belleisle, in order to prevent any inconvenience to the party there. When it was safe to approach the Island, he proceeded to land some stores, but the weather becoming very threatening before he had been enabled to deliver a sufficient quantity, he very properly determined on taking all the men up to Québec.

The working party, with all necessary supplies, &c., will be sent down as soon as the state of the river will admit, and it is expected that the whole of the masonry, &c., will be completed, and the lantern and lighting apparatus be in their places ready for lighting, by about the middle or latter end of August, at furthest.

Prior to these works having been commenced, that such difficulties had to be encountered was calculated upon, but not to the extent which has been actually experienced. In making an arrangement, therefore, for their construction, the then Commissioners, in selecting Mr. Baby, were governed by the fact that that gentleman had superior advantages towards the carrying on of such works, having the command of steamers and other vessels, machinery, materials on hand, &c. &c. To make anything like an approximating estimate of the cost, under the circumstances, was considered next to impossible, and in agreeing to sign a contract for the execution of the works at prices a certain per centage over those then paid in the City of Quebec, he particularly stipulated that it should be distinctly understood that a trust-worthy officer of the department should be stationed at each work, whose duty it should be, in conjunction with the Chief Superintendent, to keep a strict account of all expenses whatever incurred, including cost and freight of vessels, cost of materials, wages of men, &c. &c.; and that in the event of the rates stated in the form of contract being clearly found not to cover the cost attending the works, he should be settled with on the principle that such expenses should be paid, and that he should be allowed a reasonable per centage for his trouble, anxiety, and outlay. This was agreed to by the then Commissioners, and, on this principle it will be necessary, as shewn by the foregoing, that the works should be settled for.

TUG BOATS BELOW QUEBEC.

As stated in the last report, the contractor for the tug service below Quebec had been bound by his first contract to provide vessels of a certain power and class, but upon representations made to Government by the Board of Trade of Quebec, and many other parties interested in having such service effectually performed, he was requested to suspend the arrangements he was then making for the boats required by his contract, and, after some negociation on the matter, upon a report by this Department, an Order in Council was made authorising the cancelling of the contract and the making of a new one, by which iron screw vessels of vastly greater power, &c., than that required by the first contract, were to be provided by him. Such vessels have been furnished, accordingly, and since their being placed on the line, which was done within the time stipulated, the service is reported to have been performed in the most satisfactory manner.

As in the outset of all such enterprises, however well carried out, and however valuable towards the aid and encouragement of the best interests of the country, the results of this present one, so far, have unfortunately been productive of serious loss to the Contractor.

A statement has been rendered by the Contractor for this service, from which it would appear that the total expenses of the year, for working the line, up to the first of January, 1857, have been £27,804, in which sum is embraced interest upon the cost of the vessels, insurance, supplies, such as coal, tallow, &c., and the wages and boarding of the Officers and men. On the other hand, the receipts for services rendered during the season, according to the rates of the tariff fixed on, amount to but £3,933 0s. 1d. If to this sum is added the Government bonus, £11,300, the total receipts will be £15,283 0s. 1d.—deducting which from the expenditure shews a loss of £12,521 on the year. It is evident, therefore, that the service cannot be carried on unless the Contractor receives some further aid or other means be adopted. The undersigned are deeply impressed with the value of the establishment of an efficient Tug Service on the line below Quebec. There can be no doubt that, by means of it, insurance will be importantly reduced, and the trade by the St. Lawrence proportionably encouraged and enlarged. They are also firmly of opinion that the direct receipts under the tariff, (even if such rates are reduced, as the Trade now demand), will, after a year or two be very considerably increased; so that ultimately, after some years, the line will support itself, independent of assistance in the shape of bonus; but in the meantime the enterprise must be fostered. In recommending further aid, it should, in the judgement of the undersigned, be regulated by the Contractor's receipts under his tariff, and altogether withheld when it should appear that the amount of the Contract bonus and receipts of the season would prove it to be no longer warranted.

OCEAN STEAMERS.

The form of Contract under which the line of Ocean Steamers is established to ply between the Ports of Montreal, Quebec and Liverpool, during the navigation season of the St. Lawrence, and between Liverpool and Portland during the winter months, was appended to the last Report of this Department.

That the service has been performed in the most satisfactory and creditable manner, is admitted by every one; but, unfortunately, the observations just made under the preceding head, as to the losses and difficulties to which all such enterprises are in the outset subjected are equally applicable here. No pains or expense have been spared to put vessels of the first class on the line and to equip them in all respects in the very best manner. Yet it is satisfactorily shewn by the Contractors that the line has been far from being remunerative during this its first season.

The advantages to the Province that must necessarily result from the establishment of such a communication are every day more and more developed; but that they shall be such in number and extent as it is capable of insuring, the trips must be more frequent, and corresponding aid afforded by the Province. As this subject, however, has been already brought under the notice of the Legislature by the highest authority, it is unnecessary to dwell further upon it here.

The trips made by the vessels of the Canadian Ocean Steam Company have established indisputably the importance and safety of the passage by the Straits of Belleisle for a large portion of the year. Upon this subject a leading proprietor of the line, Hugh Allan, Esq., in a late communication to one of the undersigned, thus speaks.—"The Straits of Belleisle have been extensively used by our Steamships "during last year, from the beginning of June until the close of navigation in the "St. Lawrence; and although icebergs were occasionally met with, the result of last "year's experience proves that these Straits can be navigated in safety by Steam-"Ships during nearly the whole time that the River St. Lawrence is open."

In another communication from the same gentleman it is stated that—"Not-"withstanding an unusual number of icebergs which have prevailed in the Strait "and the neighbourhood of it this year, (1856), our steamers have on every passage, "both outwards and homewards, since the middle of June, taken that course, and "it is our intention that they shall continue to do so till the close of the season, thus "establishing the value and entire practicability of that passage certainly for Steam-"ships."

After commenting on the great importance of the lights now in course of erection, Mr. Allan, from the experience of the Captains of all his vessels, and of others which take this passage, urges the necessity of adding to the number of them.

The establishment of the following additional lights is strongly recommended by him, and in the order in which they are here set down.

First Season.

Superior Class.. { Cap Ray, or Cap Enragé, Newfoundland. (The Light at the South end of St. Paul's, being unnecessary there, might be removed to this position.)
Cap Whittle, on Labrador, in the Gulph. }

Inferior Class.....Brandy Pots. Pilgrims.

Second Season.

Superior Class.. { Point Ferrol in Newfoundland, West entrance of the Straits.
Battle Island on Labrador, East entrance of Straits.
Manacouagan Shoal, River St. Lawrence. }

Inferior Class.....Crane Island. Madame Island.

Third Season.

Superior Class.. { Cap Norman, Newfoundland coast, at entrance to Straits.
Point Observation, on Anticosti.
Cap Chats, and Metis, River St. Lawrence. }

In addition to the foregoing it is believed that two or three more small Lights between Madame Island and Quebec would be of great service. The positions for these would be best pointed out by the Pilots.

Each of the principal Lights should be provided with a fog gun.

From the heavy expense and delay with which the erection of stone buildings is unavoidably attended in this climate, in positions so remote and difficult of access as several of the above would be, the undersigned are inclined to believe that the substitution of light-houses of iron would be attended with a considerable saving of expense, and they have, accordingly, taken steps to ascertain as closely as possible for what price they can be erected.

Four sets of the lantern and lighting apparatus ordered from the patentee have been delivered, and it is understood that the remainder are in a state of readiness to be shipped as soon as the season will safely admit.

The following statement shews the average passages made by the principal lines of Atlantic Steam Vessels.

		Westward.		Eastward.		Out & Home.	
		Days.	Hours.	Days.	Hours.	Days.	Hours.
Cunard Line....	Boston Branch......	13.	7.	11.	12½.	24.	19½.
	New York Branch...	11.	22.	11.	13.	23.	10.
Collins' Line......................		12.	16½.	12.	8.	25.	0½.
Bremen Line.....	Southampton.......	15.	0.	14.	12.	29.	12.
Canadian Line......................		12.	20½.	11.	2.	23.	22½.

EXTENSION OF THE TELEGRAPH TO NEWFOUNDLAND—RAPIDS OF THE RIVER ST. LAWRENCE—ST. LAWRENCE AND LAKE CHAMPPLAIN CANAL.

So far, the various subjects referred to in the last Report have been followed *seriatim* in this, with such observations upon each as the expenditure upon it or other change required. But upon the next three important items, namely: the extension of the Telegraph to Newfoundland, the improvement of the Rapids of the St. Lawrence, and the construction of the St. Lawrence and Champlain Canal, as the views of the undersigned upon the great advantages to be had from each are set forth at length in that Report, and no action has since been authorized, it is unnecessary here to notice them further than to point to it for any information that may be required on these subjects.

COMMUNICATION BETWEEN CANADA AND NEW BRUNSWICK.

The works of this Road have been carried on during the past season by separate parties, working from each end. A considerable portion has been completed, as to draining and grading, which has been effected in a very superior manner. The undersigned had an opportunity of passing over a few miles of the Northern end of this Road late in August last, which the gentleman in charge of the road represented as a fair specimen of the remainder of it upon which similar work had been effected. But they were much dissatisfied at finding a considerable expense incurred on the two miles adjoining the Town of Rivière du Loup, upon which, in their judement, no outlay should have been incurred until other portions of the road, which were in all but an impassable state, had first beeen improved; as the part alluded to, next the town, was, previous to such outlay, sufficiently good in all respects for such a communication as is contemplated; and more especially as the small amount of appropriation compared with the great extent of work to be effected, will certainly not be sufficient by any means to improve the road throughout, on a similar scale, and some of the bad parts may thus, necessarily, be left still unfinished.

As before stated, the draining and grading of those parts of the road upon which they have been effected, is done in a very superior manner; and where the line passes through soil comprising a moderate proportion of gravel or other hard material, the road continues to be in a good state for travel. On the other hand, many parts of it lie through a low tract of soft argillaceous clay, which cuts up into very bad holes and ruts from the travel upon it while in a new state; and unless means are found for the gravelling or macadamizing of such portions, it is to be apprehended that they will shortly become as impassable as ever. The traffic over this road is increasing daily, and, in fact, is only checked by the bad state of the portions of it not yet improved.

This may be considered the chief, if not the only line, by which the supplies can be furnished from Canada to those engaged in the lumber trade in the north-western part of the State of Maine, and of New Brunswick.

GROSSE ISLE.

The works referred to in the last Report have since been completed. They comprised chiefly the erection of a wash-house, a dead-house, and some other necessary buildings.

The whole of the houses annually required are generally in a state of good repair; but the temporary ones, put up some years ago, are in a ruinous condition. It is proposed to take them down, and lay by the materials, (chiefly planks) for such other purposes as they may be fit for.

PUBLIC BUILDINGS.

COURT HOUSES AND JAILS

MONTREAL COURT HOUSE.

It was stated in the last Report that it was expected the works of this extensive building would be in such state of completion as to enable the Department to hand it over to the proper officer on or before the early part of May following, (1856.) On the first of that month, the Prothonotaries were put in possession of the premises, and from that period the Courts of Judicature have been held, and all business connected with them has been transacted in the building.

Requisitions from the Prothonotaries and other officers of the Courts—in many cases supported by the Judges—for interior fittings and other improvements, have, from time to time, been referred to this Department, to be carried into effect.

Additional steam tubing, to warm the distant upper portions of the building, has recently been laid.

The total expenditure amounts to the gross sum of £74,142 5s. 11d., which embraces not only the amounts paid, but those of all existing contracts and liabilities unpaid, so far as have been collected up to the first of February, 1857, viz:

Contract and measured works	£32,885	10	8
Extra works on building	11,064	16	5½
Damages and awards	6,035	17	3
Fire-proofing and contingencies	3,042	10	10½
Heating and ventilation	4,301	11	11½
Plumbing and gas-fitting	1,688	8	1½
Furniture and fittings	6,063	14	2
Carpets, matting, and grates	976	16	6
Outside works and approaches	674	15	2
Labourers, Firemen, and Watchmen	315	8	11
Fuel accounts	1,088	1	10
Special accounts, cleaning building, &c	1,781	5	1
Supervision, Architect's commission, &c	3,942	16	0
Do do.	281	1	11
	£74,142	5	11

The undersigned are not aware of any further expenditure being required upon these premises, beyond that of inclosing them with a suitable railing; in doing which it is very desirable that the portion of it next Nôtre Dame Street should be set back so as to increase the breadth of the street, which, at present, is much too confined in front of a public Building of such importance.

Representations have also been made by the City authorities, as to the propriety of removing the part of the old building which is left standing, and which, from its unsightly appearance, detracts much from the effect of the new one.

MONTREAL JAIL.

Under the head of "Jails," the Commissioners of Public Works for the time being have made repeated representations of the inadequacy of this building in every essential requisite of a proper prison, whether as regards inclosure, employment and safe keeping of the prisoners, separate airing yards, worksheds, day rooms, ventilation, classification, &c. In their last Report the undersigned also made a similar representation, and added,—"that this statement applies to every "one of the Jails with which this Department may be considered as connected, "inso far as the repairs are effected under its control. In fact some of them are a "disgrace to any civilized country, and it is with much reluctance the Commis-"sioners have found themselves the medium, unavoidably, through which expendi-"ture has, from time to time, been incurred on a number of them, which are not "only unfit for their purposes, in their present state, but incapable of being made "suitable atany cost." This representation the undersigned again feel called upon to repeat.

The Montreal Jail building remains as when last reported on. In consequence of a Presentment by the Grand Jury of the District, submitted to the Executive Government by the Hon. the Chief Justice of the Court of Queen's Bench, together with the recommendations made by Dr. Nelson, Inspector of Prisons, an estimate was prepared of the cost of carrying out the improvement of the south west and north west wings, according to the suggestions of the latter Officer. The estimate amounted to £4434 0s. 0d. the expenditure of which abides the decision of the Legislature. But before any outlay is incurred, it seems to the undersigned to be in the highest degree desirable that some comprehensive and general plan should be considered adopted, by which the Province will be freed from the stigma under which it must justly labour so long as the present dens are made use of for the incarceration as well of convicted criminals as of untried prisoners and debtors.

KAMOURASKA COURT HOUSE AND JAIL.

Upon this edifice, originally a private dwelling of moderate dimensions, a small outlay, when the District was set off, was incurred, to make it serve the purposes of a Court House and Jail. How imperfectly it answers as such, it is needless to say. A proposed addition or wing, to be used for the prison purposes, has been recommended by Dr. Nelson, the amount of the estimate for which is £2087 16s. 4d. No authority for this expenditure has yet been given.

AYLMER COURT HOUSE AND JAIL.

Further Jail accomodation, and some alterations, are required to this Building. The officers connected with it complain justly of its being very imperfectly heated. The heating was to have been effected by means of a hot air apparatus, the constructer of which guaranteed its efficiency. On being called upon to remedy the defects, he attributed the failure to the nature of the flues and chimneys, and it is true that to a certain extent, they are defective. A compromise has been made with him, and it is hoped the evil will not continue.

QUEBEC JAIL.

Repeated presentments of the Grand Jury have called attention of Government to the absolute necessity for a new Jail, in a more suitable locality. The undersigned were, in conseqnence, authorized to advertise for plans; and it was intended that buildings in accordanoe with those most approved of, and with any improvements that might be made to them, should be erected on part of the property acquired by the Province, outside the walls, and known as the "Bonner Property."

Prior to such step being finally taken, it was deemed expedient to submit the matter for the consideration of the Military authorities, and upon their strong representations of the injurious interference with the defences of the City which the erection of such buildings, in that position, would cause, and of the certainty of their having to be destroyed in the event of the City being attacked, negotiations were entered into, and are still pending, for an exchange of that property for Ordance property of equivalent value, suited in all respects for the site of a Jail. So soon as this question is satisfactorily decided, the new Buildings will be proceeded with. In the mean time, repairs to the amount of about £200 must be made on the water closets, doors, windows, surrounding walls, and pointing the exterior walls of the building.

QUEBEC COURT HOUSE.

This building is in a good state of repair, with the exception of some of the floors, which must be secured at the cost of about £100.

The Court of Appeals Room has been fitted up for the Seigniorial Tenure Commission, and the latter being now closed, the room must again be altered to its former purpose, at an expenditure of about £100.

The works connected with the introduction and distribution of water through both these buildings has been completed.

SHERBROOKE JAIL AND COURT HOUSE.

The state of this Jail and Court House, especially the former, is such as to make it the subject of a condemnatory presentment by each successive Grand Jury of the District. It is not possible to remedy the evil construction and arrangement of the present Jail; and as to the Court House, the foundation, the roofing, &c., were from the first so very defective, and the arrangements so bad, that it has been and still continues to be a source of constant complaint and expense.

Under such circumstances, the undersigned have been desirous to recommend or incur as little outlay as possible upon these buildings, and they are of opinion that, until the subject of ameliorating Jails generally is taken up and decided, any expenditure should be confined to what is barely necessary to preserve this building from going to decay. An examination of the buildings, based on this principle, has lately been made, by order of the Department, and an estimate furnished of the cost of such work as is considered indispensable, which amounts to £650 for the Court House, and £300 for the Jail.

ST. HYACINTHE JAIL AND COURT HOUSE.

The observations just made upon the Jail of Sherbrooke apply even more strongly to that of St. Hyacinthe. The Grand Jury of the District presents the Jail as being too small, insecure, and dilapidated, and utterly unfit for the purposes of a Jail. An officer of the Department was directed to examine and report upon it also, and he estimates the cost of exterior reparation at £157 15s. 0d., but adds " that a considerable outlay on the interior is required, but the build- " ing being so old and decayed he has only recommended the above indispensa- " ble outlay."

THREE RIVERS JAIL AND COURT HOUSE.

Certain repairs and improvements applied for by the Prothonotary and Sheriff have been authorized. They consist, principally, of re-building chimney tops—laying down a side walk—providing lightning conductors—pointing the walls, and supplying gas.

The roof is in a very defective state, and tenders have been called for and received both for the repair of it and for its general renewal—the lowest tender for the first being £150, and for the second £437.

QUEBEC CUSTOM HOUSE.

The plans for the intended Custom House having been selected, with the approbation of the Government, from a number of competing designs, tenders for its erection were advertised for and received, and the contract was awarded to the lowest—that of Mr. Mc. Greevy, amounting to £39,875. The total ultimate cost will be about the amount of the Architect's Estimate, namely £46,874, which may be considered divisible into nearly equal parts, one being for the building itself, and the other, what is scarcely less essential, being the filling in of a large area in front, with the necessary approaches and extensive docking required to protect them and the building from the action of the sea.—

Hitherto the works have been chiefly confined to those of the building, its foundations, &c. &c

The contractor has proceeded with unusual energy, and the progress and style of the work, thus far, have been most satisfactory. He wisely took advantage of the winter season for the providing and delivery of nearly the whole of the materials of all classes; and in addition to the facilities of carriage, which he then had, he commanded the services of the necessary number of labourers, which he could not do after the opening of the navigation, and he had them at rates considerably below what he would then be obliged to pay.

MONTREAL CUSTOM HOUSE.

The present Custom House at Montreal, and that at Toronto, are inconveniently small, and insufficient for the present and increasing wants of these flourishing ports.

The position of the Custom House in Montreal renders any serviceable enlargement of it impracticable. Repeated requisitions for a large expenditure upon it have been made by the Collectors and others; but for the reason above assigned they have not been acted upon; and in the last annual Report of this Department it was recommended that a suitable site should be acquired for the erection of a new and sufficient building, and then to dispose of the present site, which would contribute considerably towards defraying the cost of the new edifice.

TORONTO CUSTOM HOUSE.

It appears to the undersigned that the present is a desirable time to select a place for a new Custom House, which must, ere long, be built in the City of Toronto. There are vacant lots just now to be had in suitable positions, which will shortly be occupied and not attainable but at a much greater cost—and how far such site should be governed by the principle adopted of having a central dépôt and wharves for all the Railways which enter the City is deserving, of consideration.

KINGSTON CUSTOM HOUSE.

The contract for the erection of the new Custom House for the Port of Kingston was given to Mr. Thomas C. Pidgeon, Master Builder, his tender being the lowest. By the terms of the contract, the entire of the work specified is to be completed for a bulk sum £6965, being £1458 over the amount of the Architect's estimates.

The work is progressing satisfactorily.

HAMILTON CUSTOM HOUSE.

Plans have been provided for Custom House Buildings for the Port of Hamilton, and it is intended to proceed with the works so soon as the necessary appropriation is made by the Legislature.

POST OFFICES.

QUEBEC POST OFFICE.

No authority having been received for proceeding with the contemplated new Post Office at Quebec, nothing has been done. It is believed the delay is owing to to the site not having yet been decided on.

HAMILTON POST OFFICE.

This Post Office is finished, and has been available for the transaction of the business during the past year.

TORONTO POST OFFICE.

An unavoidable expenditure has taken place on the the Post Office premises of this City, the drainage having been found very defective; and some outlay has been incurred in fitting up several additional letter-boxes, which the greatly increasing business of the office required. More effectually to exclude the cold, the entrances and vestibules have been altered, and outer sashes furnished for the sorting Office, &c.

KINGSTON POST OFFICE.

The erection of the new Post Office at Kingston is being proceeded with by Messrs. Overend and Mathews, whose tender for the work was the lowest. It amounted to £6745, being about £1568 over the Architect's estimate. The work is progressing satisfactorily.

LONDON POST OFFICE.

The site for a Post Office in London has been acquired by the Postmaster General, for the sum of £2160. The appropriation made for this purpose was £2500.

The building will be proceeded with so soon as the necessary funds are granted.

NORMAL AND MODEL SCHOOLS.

MONTREAL.

Expenditure to the amount of about £1114, has, within the last six months, been incurred in effecting certain alterations required by the Superintendent of Education for Lower Canada, in the old premises fronting on Notre Dame Street, near Jacques Cartier Square, and formerly used as Government offices, to make them serve as Normal and Model Schools for the Roman Catholic portion of the population.

With the view of obtaining, without loss of time, similar advantages for the Protestant portion of the community of Montreal and the adjoining district, the authorities of McGill College proposed to Government that a sum of about £2629 should be authorized to be expended in repairing and fitting up the dilapidated building formerly occupied as a High School, upon Belmont Street, and they undertook that the School Board would, through their own Officer, take care that the outlay should be economically and judiciously managed. After due examination, an officer of the Department having reported that the repairs, &c., were indispensable and the estimates moderate, such an arrangement was made with the School Board, accordingly, on the understanding that the sum named should be deemed sufficient.

This building, also, was opened for instruction on the fourth instant.

QUEBEC.

The expenditure of a sum not to exceed £2000, to repair and fit up the remaining portion of the old Chateau or Castle of St. Louis, to accommodate the Normal and Model Schools for the City and District of Quebec, has been authorised. The repairs required must be extensive, owing to the very decayed state of the timbers and flooring, and of the roof; in fact, it may be necessary to renew the latter *in toto*. Since the authority for this expenditure was issued, a storm of wind, on the 4th of November last, damaged the roof and masonry to the extent of, at least, about £200.

LEGISLATIVE BUILDINGS.

TORONTO.

During the recess, since the last meeting of Parliament, means have been taken to render the back wings and new Libraries more safe, in the event of a fire occurring in the main building, by closing the communication with it by means of double iron doors, putting outer iron shutters to the windows, carrying up brick *coup-feux* through the roof, where that of each wing joins the roof of the central building, and covering the wings with slating. Further provision against fire has been made by the erection, within the building, of two capacious water tanks, having hydrants and connecting-hose for the immediate use of the Libraries and other parts of the house.

The new Library has been completed, and now holds the additional books recently purchased in Europe, one side of it being hung with portraits of Her Majesty, and of the Speakers of the Legislative Assembly. As the plan for this building was first furnished by this Department, it was to have been of brick, with a slated or tinned covering; but for economical reasons timber in lieu of brick was decided on by the Library Committee.

The old shingle-covered roofs of the central Parliament Building and side wings are in a very defective state, especially the former. To stop the leakage and in some degree guard against risk of fire from sparks falling on the roof, it was proposed to cover it with the Mackintosh composition, which is as much as the weak nature of the roof would admit of. Authority for this work is granted, and it will be proceeded with so soon as the weather will allow.

The Receiver General's Department having been removed to a separate building, the western wing, with the exception of a few rooms appropriated to the Clerks of the Legislative Council, is now occupied by the Inspector General's Department, including its Customs and Audit branches. Means for a supply of water for daily use and protection against fire have been provided.

The Receiver General's Department is now accommodated in a detached new brick building, in the vicinity of the Parliament Houses. Hitherto serious risk was incurred in having all the books, duplicate vouchers, and public accounts of that Department under the same roof with those of the Inspector General.

The house occupied by the Public Works Department, in York-street, having been found altogether insufficient, was, on the expiry of the lease, given up, and the Department is now amply accommodated in a building at a little distance from the Receiver General's office.

But trifling expenditure has been incurred, since the last Report, upon the premises occupied as offices for His Excellency the Governor General, the Executive Council, Provincial Secretary, and Crown Law Officers—also upon those occupied by the Bureau of Agriculture, Adjutant General's Department, Indian Department, and Ordnance Land Agent.

The premises in which the Post Master General's Department and the Crown Lands Department are accommodated have required considerable outlay during the past year. To guard against the severity of the cold, winter sashes had to be provided for a large portion of the building, and a good deal of expense was unavoidable to prevent the freezing of the cisterns and water-closet pipes, &c., and to staunch around the pediments and chimneys on the roof.

The expenditure on the Governor's residence, during the past year, has been confined chiefly to adding to the precautions against fire, by the establishment of hydrants, &c., and to the furnishing of winter sashes.

In consequence of the over crowded state of the Provincial Lunatic Asylum in this City, it became necessary, during the past year, to provide accommodation for about 80 female lunatics. This was effected by an expenditure of about £2622, upon the premises known as the "Old University Building." Its imperfect drainage had to be remedied; the decayed floors relaid; the roof repaired and coated with water-proof composition; wire guards fixed to the windows; airing yards inclosed: and gas and water introduced. Such arrangement, however, is considered but temporary, and can be dispensed with so soon as the Auxiliary Lunatic Asylum for which funds have been appropriated is built.

MARINE HOSPITAL, QUEBEC.

The new wing to this building has been completed, gas introduced into it, and a system of heating and ventilation adopted, the results of which are reported to be satisfactory so far; but Mr. Gauvreau, the Officer immediately in charge of the works, although rather favorably impressed with the mode adopted, recommends that it should not be applied to the old building until it has been further tested.

The works under the head of repairs and improvements, stated in the last Report to be necessary, are partly completed and partly in progress. But in addition to these it is now considered desirable that the whole of the tops of the chimneys of the building should be raised, to prevent the annoyance which is suffered from smoke, especially in the wings, caused by their being overtopped by the centre building.

GUN SHEDS.

Quebec.—For the safe keeping of the guns, with their carriages, tumbrels, &c., belonging to the Volunteer Artillery Company of Quebec, commanded by Major Gamache, a building has been erected on property acquired by the Government, at Quebec, lately in the possession of the Heirs Sewell. Part of the upper floor of the building is fitted up as quarters for the person in charge, and the remainder as an Armory for the arms of the Volunteer Rifle Companies. The building is nearly completed, the Guns are in the part of it provided for them, and the remainder will be finished early in the spring.

Toronto.—A building of one story was erected on the premises known as Bathurst Street Barracks, for the reception of the four gun Field Battery, with its tumbrels, &c., &c., belonging to the Volunteer Artillery Company of this city, commanded by Major Dennis.

A separate building of one story was also erected, immediately adjoining the above, to serve as a harness room; and a third building or shed, of 100 feet in length, was constructed, intended for the Artillery horses, &c., &c., to stand under in bad weather. These buildings, together with a large space planked for drill purposes, have been securely fenced round.

Hamilton.—Upon a requisition for the providing of accommodation for the Volunteer Artillery Company at Hamilton, commanded by Major Booker, an Officer of the Department was sent there for the purpose of examining the site. It had been proposed to erect the building on the rear portion of the new Post Office plot; but as this was found to be very limited, and in a densely inhabited part of the city, besides not being easy of access, it was considered more desirable to acquire another site, which was accordingly done, and plans and estimates were made for the building, which should be of brick, by the regulations of the city. The building, as planned, was to have been 140 feet in length by 36 feet in width, and of two stories; the lower to be occupied by the guns, tumbrels, &c., while a portion of the upper was to have been appropriated as quarters for the person in charge, and the remainder for an Armory, to contain 350 stand of arms, accoutrements, &c., &c., belonging to the Volunteer Rifle Companies of the city.

Recent instructions have been received by this Department to prepare plans upon a somewhat different and reduced scale, preparatory to submitting any estimate to Parliament.

PIERS AT THE RICHELIEU RAPIDS, RIVER ST. LAWRENCE.

The lands and other property on both sides of the St. Lawrence, through several Parishes above the Richelieu Rapids, have been subject, from time immemorial, to much damage, caused by the large masses of ice floating down the river being checked and accumulated by the narrow pass at those rapids, where they form, occasionally, an ice dam, which raises the water to such a height as to flood very extensive tracts, to the great detriment of the inhabitants. The subject has from year to year attracted the attention of Parliament, and, in the Session of 1852-3 a Special Committee was appointed, which took evidence and collected a good deal of information upon the matter.

It was strongly urged by many who professed to know that part of the river, and who have watched the forming of the dams, that the erection of a few small Piers above the Rapids would have the effect of causing the ice to take early, generally across the river, above them, and that, in consequence, dams, or jams of ice would not be formed, and floods, of course, would not occur. This project appearing feasible, a small appropriation was made, last session, to cover the cost of constructing the Piers. The Engineer of the Department was subsequently directed to examine the locality; and he reported he was of opinion that the object might probably be obtained by the mode proposed, but he recommended a greater number of piers, and of a stronger description than had been contemplated by those who gave evidence before the Committee. Plans and specifications were accordingly prepared, and the work was let; but the undersigned regret that, notwithstanding every endeavour on their part to push the work so that all the Piers might be sunk before the frost, and the experiment fairly tested, the work was carried on by the contractor in so dilatory a manner that but two of the Piers, and those in an imperfect state, were sunk when the work had to be suspended. When the undersigned found that the work was not proceeding with suitable dispatch, it was too late to employ other parties, but the contractors have not been paid any moneys on account, in accordance with the conditions of the contract.

An ice-bridge has been formed above the Rapids this winter, at a much earlier period than usual; but it is difficult to determine whether this favorable fact is owing to the Piers which have been sunk, or to the more than ordinary severity of the frost. At all events, it is very desirable that the experiment should be fully made.

SURVEYS.

For such service generally an appropriation of £5000 was made last Session, applicable to the carrying on of any surveys that might be determined on as desirable to ascertain the practicability and cost of several works strongly represented to be deserving of the notice of Government, and with which the advancement of the country was closely interwoven.

The first of these was a survey connected with the project of enlarging the Welland Canal, a work the importance of which cannot be over estimated.

Having learned that Walter Shanly, Esq. had been engaged for some time on the survey of the section of the country between the Welland Canal above Thorold and the Port of Niagara, to ascertain the facilities for the construction of a branch Canal between these points, the results of his surveys, including a detailed Report accompanied by plans and sections, were procured and paid for by this Department, out of the sum above adverted to. The subject of this enlargement was fully entered upon in a preceding part of this Report, under the head of the Welland Canal. (For Mr. Shanly's Report see Appendix letter B.)

Another important general survey and examination has also been made, namely, that of the River Saguenay from Chicoutimi to Lake St. John. The object of this was to ascertain the nature and extent of the impediments which exist above Chicoutimi to the sending down of lumber, the practicability and cost of their removal, and how far such expenditure would be warranted by the tracts of profitable timber country which might thereby be opened to enterprise. Mr. Merrill, the officer of this Department in charge of all the slides and other works upon the Ottawa and its tributaries for several years past, and under whose directions they have been constructed, was selected to make this exploration of the Saguenay, and the undersigned are satisfied that it could not have been entrusted to any person so well qualified, from his long and practical experience in the devising and carrying out of such works.

His report (see Appendix letter E,) is very satisfactory, as tending to shew that the removal of the obstructions from Lake St. John to Chicoutimi is perfectly practicable, at a comparatively small outlay, and that there is every reason to believe that an immense tract of valuable timber land could at once be opened to all disposed to embark in lumbering operations in that quarter, so soon as these obstacles are removed.

Surveys upon a minor scale have also been made, chiefly by the Engineer of the Department, for the purpose of obtaining information upon several matters to which the attention of government was called during the last Session,—among which are:—

PRESQU'ISLE HARBOUR.

By the Report of Mr Page, this Bay or Harbour is represented to be formed by a long narrow ridge of low land, chiefly sand, extending out into the lake in an easterly direction for nearly four miles. Its eastern extremity is a rocky formation, standing a few feet over the level of the Lake, and dipping as it recedes from the shore, but so slightly as to form a dangerous beach for nearly 500 yards beyond the point on which the principal Lighthouse stands. This ridge was formerly covered with trees, which afforded a valuable shelter to the inner bay during prevailing west and south-west winds. Many of these trees have been, of late years, cut down, and the harbour and access to it have thereby been much injured.

About a mile from the main light-house, there is a shoal called Salt Point, formed of gravel said to be thrown up by the action of the lake. This point contracts the entrance fully one fourth of a mile. Near its outer end is erected a small light-house, which, with another standing on the north shore of the ridge in a south west course, forms a guide range for vessels in the channel, immediately after passing the outer end of the Middle Ground shoal.

The area of the bay inside the light-house is of about ten superficial miles, being over two miles and three quarters in depth by three miles and three quarters in width. This width is retained for fully two miles eastward from the shore, when it gradually diminishes to about one mile, which is then further contracted by "Salt Point" to about ⅝ of a mile. Along the margin of the Bay, generally, the water is shoal, but for an area of about 2½ superficial miles, from the centre up to within a few hundred feet of the main shore, there is a depth, say of from 9 to 13 feet, and more in some places. A shoal also lies in the entrance, known as "the Middle Ground"; and to the north of "Salt Point" is "Shoal Point Shoal," which extends out from the opposite shore in both an easterly and westerly direction. All of these, combined with the crookedness of the channel, render the entrance to the harbour intricate and difficult, which when reached however, is a good one, being in a great measure land-locked, with a good depth of water in the centre and good holding ground. But the direction of the entrance with reference to the prevailing winds, must always form a considerable drawback to its advantages. Some years ago the shoals were partially buoyed out, but no person having been put in charge of the buoys they were shortly carried away by the sea and ice.—While the buoys remained in their places, it appears from the records of the light-house keeper, that in 1851, 243 vessels entered the harbour, and in 1852, 240 vessels: but since they have disappeared, the number of vessels which enters has greatly decreased.

During the past year, four vessels were wholly lost, and two stranded with a loss of several lives, while attempting to make the entrance; and although, from the crookedness and intricacy of the channel, casualties might occur, even were the shoals properly buoyed, still there can be no doubt that the risk would be materially lessened thereby.

The following buoys are recommended by Mr. Page, to be placed:

One large red buoy, on reef east of main light house.
One large red buoy on north-east point of "Middle Ground."
One large buoy on the point of "Shoal Point Shoal."
One large buoy, as a triangle, on the point of "Calf Pasture Shoal."
Three small buoys on each side of that portion of the Channel situated between Weller's Beach and Middle Ground Shoal.

The probable cost of these, with their necessary moorings, would be about £300.

Other improvements, involving heavy expenditure, have been proposed; but the above are, in Mr. Page's judgment, as much as the character of the place warrants.

As a regular Harbour Master has lately been appointed, the placing and removing of the buoys, when provided, can henceforth be duly attended to; but it is highly desirable that he should at once be invested with sufficient authority to put a stop to the destruction of the timber along the south-west side of the Bay, the cutting of which, still continued, will cause irreparable injury to the Harbour.

The foregoing Mr. Page recommends as necessary to afford the benefits of the Harbour, in its present imperfect state, to vessels seeking it, in course of trade or stress of weather. But he is of opinion that, from its position, extent, depth of water, and good anchorage, it is deserving and capable of being much more extensively improved, so as to render it in reality an Asylum Harbour easy of access. This he proposes to effect by dredging a direct channel, say of 300 feet in width, through the "Middle Ground Shoal," which he estimates could be done for the sum of £6,000.

With reference to the question that would naturally be asked whether such channel would continue open, Mr. Page states, that, from the information he has collected from old residents of the neighborhood, no change has been observed by them in the width of the shoal or depth of water on it, except what is owing to the fluctuations of the levels of the Lake.

The undersigned are of opinion that this important question requires much more investigation before it would be prudent to recommend the opening of the channel; but, fully impressed with the important benefits which would result to the trade on the Lakes, if the advantages of a safe asylum of easy access could be had at Presqu'Isle, it is intended, in the course of the season, to have a full and detailed survey and map of the Bay made; shewing all the shoals, soundings, &c., from which a judgment can with some degree of certainty be formed, as to the expediency of undertaking the work of dredging this channel.

RIVERS YAMASKA, NICOLET, ST. FRANCIS, &c.

Representations were made to Government that the navigation of the Rivers Yamaska, St. Francis, and Nicolet, all situated on the south shore of Lake St. Peter, could be considerably improved by a very small expenditure upon the removal of bars at their mouths, and surveys being pressed for, to ascertain the facts, the Engineer of the Department was directed, so soon as his other important duties would admit, to make an examination of each, which he accordingly did, and his Reports thereon are hereunto annexed. (See Appendix, letter F.)

From these it will be found that, to effect any improvement of importance to the navigation of these rivers would cost—for the Yamaska, £32,750; for the St. Francis, £10,000; and for the Nicolet, £10,000. The large amount of these estimates compared with the benefits to be derived, and the great uncertainty as to the possibility of maintaining the channels when made, deter the undersigned from recommending any outlay upon these Rivers, in the present circumstances of the Province.

Instructions had also been given to the Engineer of the Department to make an exploration of the rivers AuNord, Petite Nation, Delisle, Rigaud, and Aux Raisins, it having been stated that they also could, at small expense, be made navigable.

The season having closed before there was time to make such surveys, an opportunity will be taken in the course of this year to have them made.

Several applications for the making of similar surveys of portions of the coast of Lake Erie and Lake Huron have also been received and recommended; among them one of the coast near Kingsville, in the Township of Gosfield, and another of Pigeon Bay, in Mersea, both on Lake Erie.

In the last Report of the Department, reference was made to the expediency of having a general survey made of the River Ottawa, and from it by Lake Nipissing and the chain of waters thence to Georgian Bay, in consequence of the large share of public attention which was directed to that route, being supposed to be one by which a water-communication of sufficient dimensions could be formed, adapted to become the channel for a considerable portion of the trade between the Great West and the Atlantic. An appropriation having been made by the Legislature towards the survey, Mr. Walter Shanly was selected as an Engineer in every respect qualified for the charge and direction of it, from his long practical experience in Canal engineering. Instructions for his guidance generally were furnished to him by the undersigned, (see Appendix, Letters G. & H.) By these instructions it will be seen that his attention was directed to two important objects,—the first, and the original one for which the appropriation was made, being to ascertain the practicability at a commensurate expense, of forming a continuous water-communication from the head of the Lachine Canal to Georgian Bay, and to determine from the natural character of the river, and the obstructions to be overcome, what may be the largest scale that could be reasonably adopted. The other to enable him to report upon the facility or otherwise, of constructing a line of Railway from Pembroke, or near it, to Georgian Bay, whether by the valley of the country through which the waters above referred to flow, or in a direct line across the country, as near as the levels, &c., would admit.

Mr. Shanly lost no time in organizing and setting to work four surveying parties, for four sections of the line respectively assigned to them. The exploration has been steadily continued throughout the winter, such season answering well for part of the duty. The remoteness of some of the parties from settlements, and the great cost of forwarding the necessary supplies, have been attended unavoidably by a very heavy expenditure. The sum appropriated has already been exhausted ; on which being made known, the undersigned requested Mr. Shanly to furnish them with an approximate estimate of the total cost of completing the survey as commenced, which he calculates at £42,000. They at once made a report on the subject, and instructions have been received not to incur any further expenditure beyond what is required to supply the parties who cannot be withdrawn, until the decision of the Legislature is expressed.

The undersigned were desirous of being enabled to append to this an *ad interim* Report of Mr. Shanly, showing the character of the country, and of the river, &c., so far as the progress made in the survey might enable him to do ; but by a letter lately received from him it appears that he cannot undertake to furnish such before the middle of next month.*

In view to the development of the mineral wealth and resources of the lands bordering on Lake Superior, and the enquiries now pending before a Committee of the House of Commons in reference to the north-west Territory, the undersigned would suggest whether it may not be desirable to have a report made upon the character of the navigation from the northern channel of Lake Huron, north of St. Joseph's Island, to the Sault Ste. Marie, and thence to the entrance to Lake Superior, with the view of ascertaining the practicability and cost of obtaining a Canadian channel of communication from Lake Huron to Lake Superior.

All of which is respectfully submitted.

F. LEMIEUX,
Chief Commissioner.

HAMILTON H. KILLALY,
Assistant Commissioner.

DEPARTMENT OF PUBLIC WORKS,
TORONTO, 23rd March, 1857.

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* NOTE.—An *ad interim* report of Mr. Shanly, dated the 19th instant, was received this day, and is hereunto appended. (See Appendix—Letter I.)

No. 1.

Statement of the works of Canada, under charge of the Department of Public Works, which yield Revenue shewing the cost of construction thereof under that Department, to 1st January, 1857,—Expenditure of the year 1856,—Also, the cost incurred for Repairs and Management.

WORKS.	Cost of construction to 1st January, 1857.			Expenditure in 1856, included in foregoing columns.			Cost of Repairs and Management in 1856.		
	£	s.	d.	£.	s.	d.	£	s.	d.
Canals.									
Welland	1077111	2	10	15663	16	4	24870	19	3
St. Lawrence Canals.									
General Expenditure	17918	14	8	2096	3	11	....		
Williamsburg	271222	13	9	4019	6	1	2054	4	5
Cornwall	110579	11	3	4521	5	8	2972	0	0
Beauharnois	380933	4	6	15601	19	11	5362	17	8
Lachine	489275	12	1	7539	10	5	6593	12	5
Junction	46825	11	4	8045	14	6	....		
Chats	56778	18	8	25625	8	7	....		
Chambly	16863	6	3	....			2227	6	4
St. Ours	38219	8	3	....			1338	12	6
Burlington Bay	59370	10	7	2572	2	7	2335	4	2
St. Ann's	25567	2	8	1906	14	0	325	18	9
Slides, &c.									
Ottawa	119730	6	1	2082	6	5	1993	5	0
St. Maurice	52115	16	7	3416	14	8	1496	12	11
Trent	88025	19	0	....			221	1	2
Harbours.									
Port Stanley	47550	1	10	12173	13	8	....		
Scugog Lock	....			9486	12	2	....		
£	2898088	0	4	114751	8	11	51791	14	7

No. 2.

STATEMENT of works of Canada, under charge of the Department of Public Works from which no revenue is derived, shewing the amount expended thereon, up to the 1st January, 1856, and the expenditure from that date to the 1st January, 1857.

WORKS.	Expenditure to 1st January, 1856.			Expenditure to 1st January, 1857.		
	£	s.	d.	£	s.	d.
Public Buildings, rents, repairs	30902	19	8	6983	10	3
Do furniture, &c				5911	5	0
Parliament House, Toronto	51392	11	8	2892	8	10
Government House, do				9246	13	5
Custom House, do	965	9	11	174	0	0
Post Office, do	6349	16	1	182	18	0
Court House, Montreal	56195	6	11	12917	9	4
Post Office, Quebec	4013	1	7	16	1	0
Marine Hospital, do	10998	2	2	2925	1	3
Custom House, do	3068	18	4	17907	7	3
Gaol and Court House, Quebec	7144	15	1	1186	5	10
RIVER ST. LAWRENCE.						
Tug Boats, Upper St. Lawrence	20530	13	7	6632	1	4
Do Lower do	26569	5	7	35304	10	0
Landing Piers	167460	17	4	18444	16	7
Emigration	1954	8	0	1170	17	0
LIGHT HOUSES.						
Light Houses below Quebec	88567	4	2	31348	9	9
Light House apparatus below Quebec				10840	0	0
Point Pélée Light House				3213	12	9
Inland Light Houses	28329	18	5	1609	0	4
Light Houses, Lake Huron	5642	9	11	13659	14	8
Piers and Harbours, Lake Huron				9929	15	2
Light House apparatus, Lake Huron				9036	9	8
HAMILTON.						
Post Office	10249	2	7	1948	14	11
Custom Honse	2015	2	9	200	0	0
ROADS.						
St. Lawrence and New Brunswick	3614	11	9	7903	0	3
Metis and Metapediac				850	0	0
Escoumains and Baie des Roches				500	0	0
Malbaie and Grand Baie				500	0	0
Gaspé				14	10	4
Kempt				195	19	0
REMOVAL TO TORONTO	15536	0	9	27687	5	4
OCEAN STEAMERS	27809	10	9	22978	9	2

No. 2.—(*Continued.*)

WORKS.	Expenditure to 1st January, 1856.			Expenditure to 1st January, 1857.		
KINGSTON.	£	s.	d.	£	s.	d.
Custom House				2269	14	4
Post Office				2512	0	10
Lunatic Asylum				653	3	4
MISCELLANEOUS.						
Arbitrations	68515	19	3	1665	11	1
Surveys	5069	3	11	837	4	10
Parliament House, Quebec				207	7	9
St. Maurice Bridge				61	10	4
School of Navigation	6369	17	5	62	10	0
Observatory, Quebec				1	7	0
Boundary Survey, Canada and New Brunswick	8240	15	8	39	17	0
Chambly Canal, claims	260	10	8	25	3	9
Improvement, St. Lawrence	6151	4	0	443	2	1
Improvement, Durham Terrace, for work, 1855	3111	0	6	23	19	6
Bonner Property, Quebec	5445	18	4	212	17	6
Observatory, Toronto	3033	2	2	429	16	5
Survey St. Lawrence and Champlain Canal	6259	8	11	1014	5	6
Female Lunatic Asylum, Toronto				2314	14	6
Medical College, Toronto				774	0	5
Dredging vessel, steam pumps, &c				3019	10	8
Schooner "Canadienne"	3198	2	2	329	1	0
Gun Sheds, Ottawa				128	15	6
Do Quebec				396	9	1
Do Toronto				869	0	4
Improvements, Ottawa Navigation				933	17	11
Do St. Lawrence Rapids				7164	3	1
Upper Canada College				31	10	4
Trinity House, Quebec				2000	0	0
Richelieu Rapids				26	10	0
Ottawa Survey				5007	8	7
Provisions for Shipwrecked Seamen				464	0	0
College Avenue Grounds				624	18	0
Normal School, Montreal				121	14	11
University Buildings, Toronto				173	16	6
			£	298649	9	4

No. 3.

A DETAILED STATEMENT of Expenditure since date of the last Report, on the erection, repairs and maintenance of Provincial Light Houses connected with the Inland Navigation and below Quebec, for the Year 1856.

No.	Name of Light.	Name of Keeper.	Amount of Salary paid.			Supplies and Repairs.			Total.		
			£	s.	d.	£	s.	d.	£	s.	d.
1	Lachine Pier	John Norton	90	18	9	26	9	9	117	8	6
2	Light Ship										
3	Chauteauguay No. 2	Pierre Landre	59	7	6	63	5	4	122	12	10
4	Do No. 3	Benjamin Picard	59	7	6	81	5	8	140	13	2
5	Beauharnois	Joseph Meloche	53	8	9	127	10	8	180	19	5
6	Grosse Point	Peter Shannon	108	15	0	267	3	7	375	18	7
7	Mackie's Point	Alexander McDonald	41	11	3	25	2	10	66	14	1
8	Cherry Island	E. S. Johnson	108	6	3	119	16	9	228	3	0
9	Lancaster Pier	Thomas Hill	80	18	9	48	4	7	129	3	4
10	Coles Shoal	Richard Elliott	33	15	0	195	14	6	229	9	6
11	Grenadier's Island	Joseph Austen	22	10	0	79	2	4	101	12	4
12	Fiddler's Elbow Island	James Landon	22	10	0	79	1	7	101	11	7
13	Lindoe Island	Joseph Landon	22	10	0	79	1	11	101	11	11
14	Gananoque Narrows	Cornelius Cook	22	10	0	79	2	11	101	12	11
15	Jack Straw Shoal		22	10	0	78	19	4	101	9	4
16	Spectacle Shoal	Hiram Cook	22	10	0	80	0	6	102	10	6
17	Red Horse Rock		22	10	0	79	0	9	101	10	9
18	Burnt Island	Joseph Mervin	22	10	0	79	0	5	101	10	5
19	Nine Mile Point	Geo. B. Sparham	26	5	7	129	11	9	242	14	10
		John Dunlop	86	17	6						
20	False Ducks	Joseph Swetman	127	10	0	166	8	10	293	18	10
21	Point Peter Long Point	W. A. Palin	102	16	3	179	2	3	281	18	6
21½	Scotch Bonnet	John Giroux	..	..	..	229	6	7	229	6	7
22	Presqu'Isle	Wm. Swetman, sen.	81	2	4	142	0	4	223	2	8
22½	Do 2 Range Light	Wm. Swetman, jun.	62	7	6	42	12	3	104	19	9
23	Gull Island	George Roddick	103	8	9	91	18	10	195	7	7
24	Gibraltar Point	George Durnan	103	6	3	115	5	8	218	11	11
25	Burlington Bay	John Davidson	100	0	0	172	18	7	272	18	7
26	Port Dalhousie	Jonathan Woodall	77	3	9	80	8	0	157	11	9
27	Port Colborne	James Fortier	77	3	9	150	18	3	228	2	0
28	Mohawk Island	John Burgess	105	6	3	119	15	11	225	2	2
29	Port Maitland	Charles D. Parnell	56	17	6	82	7	8	139	5	2
30	Port Dover	William Fifield	...	..	..	76	11	2	76	11	2
31	Long Point	Moses Newkirk	63	15	0	134	17	9	198	12	9
		Henry Clarke									
32	Do Light Ship	Peter Baikie	182	15	0	43	5	9	226	0	9
33	Port Burwell	Alex. Sutherland	76	5	0	49	12	6	125	17	6
34	Port Stanley	Francis Mitchell	29	4	4	25	0	4	54	4	8
35	Pelee Island	James Cummins	105	6	3	142	10	1	247	16	4
36	Bois Blanc	James Hackett	124	1	3	48	5	3	172	6	6
37	River Thames	Thomas Cartier	124	1	3	82	15	1	206	16	4
38	Goderich	Thomas Brady	85	0	10	81	9	3	166	10	1
		Humphry Fidler									
39	Chantrey Island	Robert Mills	..	..	..	..	..	..	...	..	..
40	Isle of Coves	John Alanson	...	..	..	..	..	...	...	..	..
41	Nottawasaga Island	Arch. McDugal	...	..	...	..	..	..	..	...	..

No. 3.—(*Continued*)

No.	Name of Light.	Name of keeper.	Amount of Salary paid.			Supplies and Repairs.			Total.		
	Below Quebec.		£	s.	d.	£	s.	d.	£	s.	d.
42	Belle Isle	D. Vaughan	18	15	0	126	2	9	144	17	9
43	Anticosti	D. Ballantyne John Harvey, asst.	19	2	0	126	10	1	145	12	1
44	Forteau Bay.	Jno. Blampied A. Dussault, assist.	29	7	8	125	10	1	154	17	9
45	Cap Rosier	Eugène Trudeau L. Lemieux, assist	..	..	..	126	0	5	126	0	8
			2784	7	9	4479	8	10	7263	16	7
	Management, Travelling Expenses, Freight, &c.		..	..	..	910	9	8	910	9	8
			2784	7	9	5389	18	6	8174	6	3
	Less :—This amount, Supplies taken from Store		..	..	..	239	8	10	239	8	10
			2784	7	9	5150	9	8	7934	17	5
	EXPENDITURE ON ERECTION.										
	Light Houses below Quebec		..	..	..	..	..	...	31348	9	9
	Light House Apparatus below Quebec		..	..	..	...	...	..	10840	0	0
	Point Pélée Light House		..	...	...	..	..	...	3213	12	9
	Inland Light Houses		..	..	..	..	..	..	1609	0	4
	Light Houses, Lake Huron		...	...	..	..	..	..	13659	14	8
	Harbours and Piers, Lake Huron		..	...	..	..	..	..	9929	15	2
	Light House Apparatus, Lake Huron		..	...	..	...	..	..	9036	9	8
			2784	7	9	5150	9	8	87571	19	9

No. 4.

Statement of amounts paid on awards for damages on each work, since date of last Report,—also, amounts paid to Arbitrators or Commissioners, for services and expenses, up to 1st January, 1857.

	£ s. d.	£ s. d.
Lachine Canal	591 12 11	
Welland Canal	550 0 0	1141 12 11
Amount paid Adolphe Larue, Commissioner to settle Land Damages..	365 18 10	
J. T. Taschereau	30 0 0	
G. O. Stuart	30 0 0	
W. K. Brensden	27 0 0	
Other expenses	70 19 4	523 18 2
£		1665 11 1

N. B.—The above amounts are included in Statement No. 1, Welland and Lachine; also, in Statement No. 2, Arbitrations.

No. 5.

Statement shewing the total amount expended by the Department of Public Works during the year 1856, as detailed in the foregoing Statements, Numbered 1, 2 and 3.

	Repairs and Maintenance.	Construction.	Total.
	£ s. d.	£ s. d.	£ s. d.
Statement No. 1	51791 14 7	114751 8 11	166543 3 6
Do No. 2	...	232563 11 10	232563 11 10
Do No. 3	8174 6 3	...	8174 6 3
£	59966 0 10	347315 0 9	407281 1 7

APPENDIX.

A.

AVENUES OF WESTERN TRADE.

By T. C. Clarke, Esq. Civil Engineer.—Of the further greatness of the trade of the north west we need neither illustration nor argument to convince us. Its deep development during the last twenty years, from nothing to a value between three and four hundred millions of dollars, is of itself a fact so astonishing that we are prepared to accept, without incredulity, the most startling speculations. The growth of Chicago, the chief collecting point of this region, from a miserable village of log huts, with a handful of the usual hangers on of a military outpost, to a great City of nearly one hundred thousand inhabitants, whose daily arrivals and departures of vessels is exceeded by New York alone, is another western phenomenon, which puzzles the sober farmers of New England and the easy going planters of the old Dominion.

It was not until the opening of the Erie Canal in 1825, cheapened the precarious and expensive means of transport then existing to the lower end of Lake Erie, that the tide of emigration set in with any force to the northwest; from that period until about 1840, the exports of this region were small; the surplus products being consumed by the ever increasing crowd of new settlers.

During the last fifteen years time, and the effect of judicious public improvements, have so far developed the resources of this country, that the value of the Lake trade had increased between 1840 and 1850 from $60 to $300 000,000 and if it has continued to increase in the same ratio, must now have attained the value of $450,000,000. The total number of tons arriving at tide water from the Western States, by the Erie Canal, has increased from 158,148 tons in 1840 to 1,213,690 tons in 1853. It is estimated by Mr. J. B. Jervis that this trade will double in the next six, and quadruple in the next fifteen years: so that in 1870 there will be an eastern movement of five millions of tons, the surplus products of the north west: and were all this business done through the Erie Canal, the total annual movement would exceed nine millions of tons.

That this estimate is a safe one, and rather errs in being under than over the mark no one will doubt who considers how small and insignificant a part of the vast territory tributary to the commerce of the Lakes is now occupied and under cultivation. It is safe to say that out of a region variously estimated to contain from 550 to 700,000 square miles of fertile Territory, not one twelfth part is now occupied, and that but sparsely. From a country capable of supporting 20,000,000 of people what may we not expect?

Although but few persons could appreciate the immense magnitude of the prize, yet from an early day attempts were made by different sections of the country to direct the western trade to themselves. The two natural routes to the ocean from this great inland basin are by Mississippi and by the St. Lawrence Rivers. To these we may add a third, that great and only gap in the Alleghany chain which is penetrated by the Hudson Rivers and its tributaries. This route, although at first sight not so apparent as the others, really possesses great natural advantages, and compares very favorably with them, as we may infer from the fact that the expenditure found necessary to overcome the Rapids of the St. Lawrence and the Falls of Niagara, was considerably greater than the cost of the original Erie Canal.

The Mississippi route, although not requiring so much artificial improvement, has some very serious disadvantages: one of which is the very variable regimen of its tributaries, which half the year are in freshet, and the other half nearly dry. Whether this state of things can be obviated by art, it is difficult to say. Those who take an interest in the subject are referred to the able essays of Charles Ellet, Jr., on the improvement of the Mississippi and Ohio Navigation.

A more serious objection to the Mississippi, as an outlet of the north west, is found in the fact that the heated waters of its mouth and of the Mexican Gulf are unfavorable to the preservation of those cereal products which form the staple of western export. Mr. McAlpine in his Canal Reports for 1852 and '53, has shewn that when the enlargement of the Erie Canal is completed, the cereal products of the west can be brought to the New York Market from as far south as the confluence of the Ohio and Mississippi rivers, cheaper than to New Orleans, while the products of the hog, which is not slaughtered early enough in the fall to reach the northern water lines before they are closed by frost, will continue to find their way by the Mississippi River.

The St. Lawrence is the other rival for western trade; but if we examine what proportion finds its way by that route, we shall see that it not only does not attract any of the trade of the Western States, but is fast losing even the trade of Upper Canada.

Previous to 1850, by far the largest part of Western Canadian trade was done through Montreal and the St. Lawrence, and the trade with the United States was very insignificant, but with the cessation of protection to Canadian products in British markets, and the repeal of differential duties in favour of the St. Lawrence, a trade began to spring up between the two countries which has been greatly extended by the operation of the United States Bonding Act, which came into effect in 1850, and the Reciprocity Treaty in 1855. The effect of these two measures has been to divert the trade of Canada West from the St. Lawrence to the New York Canals and Railways.

In 1854 the value of imports by the St. Lawrence was..	$21,171,752
Exports	12,501,372
Total value of Trade	$33,673,128

In 1855 the value of imports by the St. Lawrence was...	$11,494,028
Exports	6,975,500
Total value of Trade	$18,469,528

During the same years the reciprocal trade with the United States was as follows:

In 1854 the value of imports from the U. S. was	$13,553,096
Exports to United States	18,418,000
Total value of Trade	$23,971,096

In 1855 imports from United States	$20,825,432
Exports to United States	20,002,288
Total value of Trade	$40,827,720

Thus, in one year the trade of the St. Lawrence has lost a value of $15,203,600, while the United States trade has gained a value of $16,856,624. Such a revolution in the course of Trade is remarkable.

A part of this change is due to the Grand Trunk Railway which enables Lower Canada merchants to make their Spring importations through Portland before the opening of navigation on the Canals; but this is a trifle in comparison with what has actually been diverted through the State of New York.

We shall therefore assume it as an established fact that at present "the commerce of the West no longer seeks an outlet by the stormy and icy mouth of the St. Lawrence, nor braves the dangers of the Mississippi on its way to the sultry shores of the Gulf of Mexico, but principally follows the chain of the Great Lakes to the deeply grooved channels of the Erie Canal, and finds in the low level of the Mohawk Valley the only easy passage through the chain of the Alleghanies. We propose in the limits of this article, to take up the subject of Western Trade where it was left by Mr. McAlpine two years ago, in his masterly reports on the New York Canals, and investigate the new routes which have come into public notice since he wrote, and compare them with each other and with those already existing.

Taking Chicago as our point of departure, we have at present two lines of water communication with New York, one via Buffalo and the Erie Canal, the other via the Welland Canal and Oswego. But western enterprise is not satisfied with these existing routes, and demands new ones for three reasons.

In the first place, considering the probable increase of their trade, they believe that it will not be many years before the enlarged Erie Canal will be choked up by a plethora of traffic, as the old one has been.

Secondly. They believe in the wholesome influence of competition and do not like to see their only outlet in the possession of parties over whom they have no control. They remember the effect of the opening of the Canadian Canals in bringing down the tolls on the Erie Canal, and that the whole north west would annually have been taxed a large sum on both exports and imports, but for them. Mr. Andrews states that in the year 1851 the redection of tolls on railway iron amounted to $553,955 and on wheat and flour to $512,830, or nearly $1,067,000 less than they would have been by the rates of 1854, before the Welland and St. Lawrence Canals were opened.

Lastly. Experience has proved that the larger the vessel, the cheaper the cost of conveyance. This, of course, has a limit somewhere, and what is the exact size of draft that shall be found most economical, nothing but experience can decide. The present state of our knowledge is that propellers are a cheaper mode of conveyance than side wheel or sail craft, and that propellers of 800 tons burthen and over, would be more economical than those of 400 tons, which is the largest size that can now pass the Welland Canal Locks.

What the exact amount of the saving would be, it is difficult to tell, but one of the most intelligent Western forwarders estimates that in a trip of 1,100 miles from Chicago to Buffalo, if the gross receipts of a vessel of three hundred tons are $1,237.50, she would net $500; while one of 600 tons out of gross receipts of $2,505 would net $1,600. The saving in this case is nine-tenths of one mill per ton per mile, if we assume that 1,000,000 of tons is annually transported 1,000 miles on the Lakes in vessels of 300 to 400 tons burden, thereby doubling the size of these vessels, the annual saving to the trade would be $900,000. The accuracy of this estimate we have no means of proving, but we are inclined to think that the general result is understated. The size of vessels is now limited by the depth of water in the Lake harbours and on the St. Clair Flats, and by the Locks of the Welland Canal. Besides these arguments for the improvement of the existing routes, and the opening of new ones, which address themselves particularly to the inhabitants of the Eastern and Western States, the people Canada have another reason even more cogent.

We have seen that the Welland and St. Lawrence Canals confer an annual benefit upon trade of over $1,000,000. During the last five years these same Canals have cost the Province of Canada for repairs and general expenditure $2,610,780. The receipts during the same period have been $1,835,536, shewing a deficiency of $775,224, which added to $3,700,000, which is the interest on their cost during the same period, amounts to $4,475,224 or an annual loss of $895,000. Even supposing that the "construction accounts could be closed" and that the annual expenditures on the Canals could stop, the interest on their present cost is $820,000, and the net receipts, after deducting expenses of collection and superintendence, are but $220,000.

Thus it appears that if by opening any new routes the business on the Welland and St. Lawrence Canals could be increasd, the people of Canada have a very strong interest in urging forward such schemes and lending them aid.

The new projects are three in number. The first is to open a Ship Canal from the St. Lawrence to Lake Champlain; also having in view the enlargement of the present Welland Canal locks to a size sufficient to pass propellers and steamboats of from 800 to 1,000 tons burden.

The second is to build a Ship Canal of the same capacity from the Georgian Bay of Lake Huron to Lake Simcoe, and thence across the narrow neck of land that separates that sheet of water from Lake Ontario.

The third scheme contemplates opening up a propeller navigation on the same scale from Lake Huron, via French River, to Lake Nepissingue, and thence down the Ottawa to Montreal.

The St. Lawrence and Lake Champlain Canal has been under consideration for some years, and various elaborate reports have been made upon it by different engineers, both Canadian and American. After some conflicting opinions as to the question of its proper location, a line has been adopted by the Canadian Commissioners of Public Works, commencing at St. John's on the Richelieu River, at the lower end of Lake Champlain, and running thence northerly by that river and the present Chambly Canal, for some nine or ten miles, and thence westerly to the St. Lawrence River at Lake St. Louis, near the Indian Village of Caughnawaga, from which the Canal has been named. The entire distance is thirty-two and a half miles, and the entire lockage twenty-nine feet, and it is fed directly from Lake Champlain. Its locks will be large enough to pass vessels of from 800 to 1,000 tons burthen, and its cost is estimated at from $2,000,000 to $3,000,000.

In immediate connection with the Caughnawaga project is the enlargement of the present Welland Canal, or rather rebuilding, for the proposition is to widen and deepen the present Canal from Lake Erie to Thorold, on the edge of the Mountain, and then strike off by a new and independent route to the Town of Niagara, just above the mouth of the Niagara River. This it is thought could be done as cheaply as to attempt to enlarge the present Canal, while it would have the advantages of leaving that undisturbed, and practically doubling its capacity, and would get a better harbor than is now in use at the present terminus on Lake Ontario. The scale of the new Canal is for vessels of 800 to 1,000 tons, and the cost is estimated at $6,000,000.

The Welland and St. Lawrence Canals have cost the Province of Canada up to the present time, including interest, $13,668,000, and, as we have seen, they do not pay two per cent. on this outlay, although of vast benefit to trade and commerce in general. It is believed by many intelligent persons that a farther expenditure of $3,000,000 on the Caughnawaga Canal, and $6,000,000 on the enlargement of the Welland, would divert such an amount of trade into this Canadian route that it would eventually pay six per cent. on the whole outlay of, say $23,000,000, for they maintain this would be a quicker and cheaper route to New York than any now existing.

As will be seen from our investigations a few pages further on, this assumption is perfectly correct, provided the State of New York can be induced to enlarge the present Champlain Canal from White Hall to Waterford, on the Hudson River, to the same scale as the proposed Canadian Canal, and make such improvements in the river as would make it navigable for vessels of the class which could go through the Canal. It is estimated by Mr. Andrews that the State of New York derives an annual revenue of $450,000 from her Tolls upon articles of Canadian Trade passing through the Oswego and Erie Canals.

The greater part of this would be lost if the Champlain Canals were built, unless indeed, she put so heavy a toll on it as to pay the interest on its cost, and reimburse her moreover, what she lost from the Oswego and Erie Canals. But this could not be done without making the new route more expensive than the old ones; hence it seems probable that the State of New York will not enlarge the Champlain Canal until the Erie and Oswego Canals get more business than they can do, and it would be manifestly unwise for the Canadian Government to embark in so expensive an undertaking until they were sure that the State of New York would co-operate with them.

That, however, is a mere question of time. But there is another point of view from which we may consider the Caughnawaga Canal, by which it does not require the Champlain Canal as a necessary adjunct. We may look upon it as a channel for the trade between the New England States and the West. This is already very large, and becoming more so every year as those States become more manufacturing and less agricultural. It is estimated by a Committee of the Massachusetts Legislature who have just reported on the proposed Hoosac Tunnel, that the annual trade of that State alone amounts to 800,000 tons. This is too large an estimate; but it is safe to say that of the 4,000,000 of tons annually passing through the Mohawk Valley, nearly one-half is due to New England.

The Ogdensburg Railway was built by Boston capital, in the hopes that it would afford a channel for that trade. But it has never been able to compete at all with the water lines of communication. By their last report it appears that the total amount of through freight going East and West on that road last year was but 87,000 tons. The balance finds its way through the Mohawk Valley to the Hudson, a very small part goes over the Albany and Boston Railway; by far the largest part goes on to New York, and is thence shipped to the different New England ports.

It is believed by the advocates of the Caughnawaga Canal that freight could be laid down at ports on Lake Champlain, Burlington, and Whitehall, and distributed by rail over the greater part of New England, cheaper than it could be conveyed through the present Champlain Canal and by the way of New York. New York would then be obliged to complete the ship navigation in self-defence, to prevent her trade being stopped by the New England railways.

Few persons have looked upon the map of the great lakes without noticing the nearness with which the Georgian Bay of Lake Huron, and Lake Simcoe, which empties into it, approach to Lake Ontario. By cutting through an isthmus of about 50, miles a saving of 400 would be made on the trip from Chicago to Oswego. Accordingly, a Canal across this point has long been talked of. Last year the project was revived and a convention of delegates from Oswego and Chicago met to deliberate upon it.

Upon close examination, it is found to be not quite such plain sailing as at first glance might appear. Lake Simcoe is 475 feet above Ontario, and 110 feet above Huron, making a total lockage of 585 feet, against 360 by the way of the

Welland Canal and St. Clair river. Moreover, there is a summit ridge between Lakes Simcoe and Ontario which could not be locked over on account of deficiency of water to supply the summit level, and must be cut through and fed from Lake Simcoe. This would require, according to the statements of an engineer who has made some preliminary examinations, a cutting of nearly 200 feet for a mile and a half, and an average cutting of 50 feet for six miles and a half. This would seem rather a formidable obstacle, but we believe is considered quite a trifle by the friends of the project. The length of artificial navigation is estimated at 94 miles, and, from comparison with other works, the cost is estimated at $25,000,000. It is understood that careful surveys and estimates are being made; when they are reported we shall be able to speak with more certainty as to the practicability of this scheme.

Another project which finds great favour with the people of Lower Canada, is the improvement of the Ottawa navigation through to Lake Huron. The saving of distance would be great. From Chicago to Quebec by the Welland Canal is 1,657 miles; by the Ottawa route 1,176 miles, or 481 miles shorter. From Chicago to New York by the Ottawa and Champlain route would be 1,358 miles, or 257 miles nearer than by way of Buffalo and the Erie Canal.

As to the practicability of improving this course of navigation so as to admit craft of 800 tons and over, at any reasonable cost, it is impossible to speak with certainty, until an accurate survey is made by some reliable engineers. This the Canadian Government has announced its intention of doing at an early date. If there be any great difficulty, it will be in getting from the Ottawa to Lake Nepissingue without too expensive cutting. In other respects the route seems favorable. The Ottawa is a large river consisting of long reaches, or rather lakes, with little currents, from twenty to fifty miles long, separated from each other by short rapids and falls.

The only scientific reports we have on the Ottawa, are those of Mr. Hawkins, an engineer who examined it in 1838, and those made in connection with the Geological Surveys of the Province. From these reports it appears that the whole distance from Montreal to Lake Huron is 421 miles, about 60 of which are obstructed by falls and rapids: The total rise and fall is about 700 feet.

Of these sixty miles of obstructed navigation, twenty are already improved; but only the Lachine Canal, eight and a half miles long, is large enough to admit vessels of 800 to 1,000 tons. St. Anne's Lock is not deep enough, the Grenville Canals and the Rideau at Ottawa City, have locks only thirty-three feet wide. The government is now building a Canal on the St. Lawrence scale, three miles long, between the Chats and Chaudière Lake, twenty miles above Ottawa City. This leaves some forty-eight miles yet to be built and rebuilt. Of course, with our present knowledge, we cannot say what this will cost, but it is not probable that, even if no extraordinary difficulties are found, the Ottawa Canals could be built for less than double the cost per mile of the St. Lawrence Canals, owing to the hardness of the rock, which is granite, primitive lime stone, and hornblende mixed with quartz, and to the difficulty of transporting labour and supplies to such a wild country. We may, therefore, assume the minimum cost of this improvement, to be $12,000,000.

There is one great advantage this route would have over all others, namely, a certainty of return freights. The Ottawa Country contains inexhaustible supplies of pine, and abundant power to convert it into sawed lumber. Owing to the cheapness of the up-freights, Chicago now draws from the east end of Lake Ontario much lumber that formerly went to the Albany market, and it is reasonable to expect that her influence would be felt far down on the Ottawa.

This improvement must be a gradual one. It would be of little use unless the Caughnawaga and Champlain Canals were first built to give it an outlet.

It is probable that unless the Surveys of the Canadian Board of Works find too great obstacles, the scheme of making a through navigation will be adopted, and will be gradually carried out by extending the Canals up the Ottawa, and thus opening the country for settlement, until they are completed through to Lake Huron.

It will be both interesting and instructive to compare the cost of conveying a ton of freight—say, ten barrels of flour—from Chicago to New York and to Quebec by the existing routes, with the probable cost of conveyance by the new ones we have been speaking of.

We shall consider the costs rather than the charges, as the one is less fluctuating than the other; the elements on which it depends being affected alike on different routes.

The cost of conveying a barrel of flour from Chicago to Buffalo in the class of propellers now generally used, is from 25 to 30 cents; 27½ cents per barrel would be equal to 2½ mills per ton per mile, and this, we think, is a fair basis of comparison. We have previously seen that the estimated saving would be nearly one mill per ton per mile, if vessels of a larger size were used. In order to be on the safe side, we shall call it but half a mill, and assume the cost of conveyance on long down voyages, on propellers of 800 tons burden and over, at two mills per ton per mile. This is the same as Mr. McAlpine's estimate.

The cost of transport on the old Erie Canal, was 7½ mills per ton per mile, and Mr. McAlpine estimates that the enlargement will reduce it to 4. On Ship Canals, the sizes being equal, the cost of transport depends on the amount of lockage. On Canals of low lockage, like the present St. Lawrence and proposed Caughnawaga and Champlain Canals, the cost in propellers of large size would not exceed 3 mills per ton per mile.

In Canals of great lockage, like the Welland, the present cost of transport is nearly 6 mills per ton per mile. The enlargement, by reducing the pressure of business, would certainly reduce it to 5; and this is considered a fair estimate for the cost of transport on the proposed Toronto and Ottawa Canals.

The question of tolls is a more difficult one, inasmuch as they are often varied arbitrarily, being placed very low to attract trade, and raised very high when it is thought that the trade is secured. As we are comparing different routes, we must, in our assumptions, take care that they are *comparatively* correct as regards one another.

The toll on flour on the Erie Canal has been 6½ mills per ton per mile. The rate established by the Canal Board, to take effect the present season, is but 3 mills per ton per mile.

The toll on a ton of wheat or flour passing the Welland Canal, is 45 cents, or 16 mills per mile; on the St. Lawrence Canals, 30 cents or 7 mills per mile; but wheat and flour, and some few other articles, going through both Canals, only pay toll in the first. This is about 6 mills per ton per mile for the whole length of Canals. After the proposed improvements are finished, a toll of 5 mills per ton per mile, would probably be found sufficient to pay a good return on the whole investment.

The Ottawa and Toronto Canals, costing double as much, should not have a less toll than 10 mills per ton per mile.

The cost of transport, including tolls, on the different Canals now constructed and proposed, will stand thus:

	Mills per ton per mile.		Mills per ton per mile.
Old Erie Canal..................	14	Caughnawaga................	8
Enlarged Erie Canal..........	7	Enlarged Champlain..........	8
Present Welland alone........	22	Ottawa Canals................	15
Welland and St. Lawrence....	10	Toronto Canals................	15
St. Lawrence..................	8		

Taking these data, we will now calculate the cost of conveying ten barrels of flour from Chicago to New York by the present Erie Canal, via Buffalo.

	Miles.	Mills.	
Chicago to Buffalo	1,100	2½	$2.75
Transhipment at Buffalo			20
Buffalo to Troy	364	14	5. 9
Troy to New York	151	4	60
	1,615		$8.64

After the enlargement of the Erie Canal is completed and the cost of conveyance is reduced to 7 miles, including tolls, the total would be $6.10. If the state of the St. Clair flats allow the use of the largest class of propellers between Chicago and Buffalo, reducing the Lake Voyage to 2 mills, the Total will be reduced to $5.56.

By the way of the present Welland Canal and the Oswego and Erie enlarged Canals :

	Miles.	Mills.	
Chicago to Oswego	1,250	2½	$3.15
Welland Canal	28	22	62
Transhipment at Oswego			20
Oswego to Troy	209	7	1.46
Troy to New York	151	4	60
	1,638		$6.03

The effect of enlarging the Welland Canal would be to reduce the cost of the lake voyage half a mill, and as the enlargement of the Welland is in close connection with the Caughnawaga Canal, whose prosperity depends in a measure on the Champlain Canal, which is under the control of the State of New York, we shall be obliged to suppose that the Canadian Government will have to give up their present discriminating toll on the Welland in favour of the St. Lawrence Canals, and charge the same toll to Vessels going to Oswego as they would if they went down the St. Lawrence, for, if they should refuse to do this, the State of New York might retaliate by placing a heavy toll on the Champlain Canal.

The cost by the Oswego route, supposing the Welland to be enlarged, would stand:

	Miles.	Mills.	
Chicago to Oswego	1,250	2	$2.50
Welland Canal	28	10	28
Transhipment at Oswego			20
Oswego to Troy	209	7	1.46
Troy to New York	151	4	60
	1,638		$5.04

Were the proposed Canal built from Georgian Bay to Toronto, the cost by that route and by the Oswego enlarged Canals as before would be:

	Miles.	Mills.	
Chicago to Oswego	750	2	$1.50
Canal	94	15	1.41
Transhipment at Oswego			20
Oswego to New York	360		2.06
	1,204		$5.17

Were the proposed Caughnawaga Canal built, and the Welland Canal locks enlarged, the cost by this route would be:

	Miles.	Mills.	
Chicago to east end of Lake Ontario	1,263	2	$2.53
Welland Canal	28	10	28
East end of Ontario to Caughnawaga	143	2	29
Caughnawga and St. Lawrence Canals	65½	8	52
St. John's to Whitehall	120	2	24
Chicago to Whitehall	1,619½		$3.86
Transhipment at do.			20
Champlain Canal	65	14	91
Waterford to New York	155	4	62
	1,839½		$5.59

But if the Champlain Canal was enlarged to the same scale, and certain improvements made in the end of the Hudson River, so that vessels drawing ten or eleven feet water could come up to Waterford, the cost would be:

	Miles.	Mills.	
Chicago to Whitehall	1,619½		$3.86
Champlain Canal	65	8	52
Toll on River Improvements, say			10
Waterford to New York	155	2	31
	1,839½		$4.79

By the proposed Ottawa route to the St. Lawrence, and thence by the Caughnawaga and enlarged Champlain Canals, it is probably that the navigation of a rapid river like the Ottawa could not be effected so cheaply as lake navigation, or that on a river of the character of the Hudson. It has been deemed a fairer comparison to assume the cost of transport on the navigable parts of the Ottawa, at 3 mills per ton per mile. We shall then have:

	Miles.	Mills.	
Chicago to mouth of French River and Lake Huron	575	2	$1.15
Ottawa Canals	50	15	75
Ottawa navigable to Canghnawaga	361	3	1.08
Caughnawaga Canal	32½	8	26
St. John's to New York as before	340		1.17
	1,358½		$4.41

From the above comparison of routes, it appears that the Ottawa route is the cheapest, the cost being $4.41.

Next comes the enlarged Welland and Caughnawaga, the cost being $4.79. But if the Champlain Canal remain unenlarged, the cost would be $5.59, and it would be rivalled by the Oswego route, which would be $5.04 by the Welland, and $5.17 by the Toronto route.

It will be seen that although the Toronto route saves 434 miles over that by the Welland Canal, we have made it 13 cents per ton dearer. This is owing to the Toll, which we have estimated at 5 mills on the Welland, and 10 mills on the Toronto Canal. This seems proper, when we consider that the total cost of the Welland, after its enlargement, is estimated at $10,500,000, and the Toronto Canal at $25,000,000.

The prosperity of Oswego, it will be seen, depends in a great measure upon large vessels being able to reach Lake Ontario; for if the present size only can get there, she is rivalled by Buffalo, the cost standing at $5.56 that way, against $6.03 by way of Oswego and the present Welland Canal. Hence the interest taken by the Oswego people in the enlargement of the Welland, or the building of the proposed Toronto Canal.

Let us now briefly examine into the sums thought necessary to carry out these proposed improvements.

We have seen that the State of New York, by the expenditure of some fourteen millions of dollars on the Erie Canal, opened a route by which a ton of freight could be conveyed to New York city from Chicago for $8.64, and by a further expenditure of twenty-two millions in enlarging her Canal, she will reduce it to $5.56.

An expenditure of six millions more in enlarging the Welland Canal would reduce it to $5.04. Three millions on the Caughnawaga, and eight on the Champlain and Hudson River improvements, or seventeen millions in all, would reduce it to $4.79; while an expenditure of twenty-five millions on the Toronto route would only reach $5.17.

By the Ottawa route, we have seen the cost is $4.41. The carrying out of this improvement will depend entirely on the cost, or, in other words, how much it is desirable to spend on a new route to reduce the price per ton between Chicaga and New York, 38 cents below the Welland Canal route price.

The excessive cost of the Toronto Canal must be a barrier to its execution while cheaper routes can be found.

It is evident that the way in which the greatest saving of the cost of transportation can be effected with the least outlay of capital, is in enlarging the Welland Canal, constructing the Caughnawaga, and enlarging the Champlain Canals.

It only remains to speak of the competition between New York and Montreal or Quebec, as ports of export. We will first examine the cost of conveying a ton of freight to Quebec by the several routes heretofore mentioned:

First, by the present Welland Canal route.

	Miles.	Mills.	
Chicago to east end of Lake Erie........	1,100	2½	$2.75
Welland Canal and St. Lawrence........	71	10	71
Port Dalhousie to Montreal, free Navigation	306	2½	76
Montreal to Quebec.....................	180	2½	55
	1,657		$4.77

Second, by the enlarged Welland.

Chicago to east end of Lake Erie........	1,100	2	$2.20
Welland Canal..........................	28	10	28
Port Dalhousie to Montreal...............	366	2	61
St. Lawrence Canals.....................	43	8	34
Montreal to Quebec.....	180	2	36
	1,657		$3.79

Third, by the Ottawa.

Chicago to French River.................	575	2	$1.15
Ottawa and Lachine Canals.............	60	15	90
Ottawa, navigable....................	361	3	1.08
Montreal to Quebec.....................	180	2	36
	1,176		$3.49

It will be seen that it is 79 cents cheaper from Chicago to Quebec than to New York by the present route, and if all the proposed improvements were carried out, it would still be 92 cents cheaper per ton. The question arises, why does so much of the Western trade go to New York?

In the first place, lake vessels going to Buffalo or Oswego are sure of return freights; while, if they went to Quebec, a majority of them would come back light. While the imports of the West are done through New York, her exports must take the same route.

In the next place, the largest part of the surplus products of the West are not exported from this country. The Eastern States are the great consumers, and becoming more so every year, as agriculture yields to manufactures—more mouths to feed and less hands to raise food. It is computed that out of equal to three million barrels of breadstuffs arriving at New York annually, only one million is exported. The rest is consumed on this side of the Atlantic. No one needs to be told that New York is nearer the home market than Quebec.

But besides that larger part of Western product which is used for home consumption seeking New York, the other part which is destined for foreign markets will seek it also. In the note will be found a table extracted from an able little pamphlet recently published at Montreal, entitled "Letters on Canadian Trade and Navigation," by Hon. John Young, M. P. This shows the cost of conveying a barrel of flour from Montreal to Liverpool, and from New York to Liverpool, from 1846 to 1855, from which it appears that the freights from New York to Liverpool have ruled at $5 per ton, and from Quebec at $9 per ton.

Let us now examine the cost of conveying a ton of wheat or flour from Chicago to Liverpool, by New York and by the St. Lawrence, the port charges and insurance being assumed as equal, although they are both in favor of New York.

First, by the Erie Canal.

Chicago to New York.......................Miles—	1,615	$5.56
New York to Liverpool.....................	3,150	5.00
	4,765	$10.56

Second, by the present Welland Canal and St. Lawrence.

Chicago to Quebec...........................Miles—	1,657	$4.77
Quebec to Liverpool........................	2,910	9.00
	4,567	$13.77

A difference in favour of the New York route of $3.21. Even taking the most favorable case that could occur for the Quebec route, the construction of the Ottawa Canals alone, we have the cost to Liverpool, by that route, $12.49, or or $1.93 dearer than the New York route. Although the St. Lawrence route is so much the shorter, it is evident that while ocean freights rule so much higher that way, it cannot compete with New York.

The cause of this is, that so much more is imported by New York than by Quebec, Ships and steamers having full loads out are prepared to return freight from New York very low; while, on the other hand, the majority of vessels coming to the St. Lawrence arrive in ballast, and depend upon the home voyage for their profits. This is what makes freights between Quebec and Liverpool rule so high.

That this state of things will last for ever, no one should be bold enough to assert. A time may arrive when a direct trade will spring up between Chicago and Liverpool or London. Quebec, by receiving a steady supply of inward freights, may see the outward freights lowered to something near those from New

York. But it is clear that Chicago cannot import through New York and export through the St. Lawrence. When she has accumulated capital enough to import direct, then she may export direct.

That this is improbable, no one who has witnessed what the West has done in the last ten years will venture to assert; and, on the other hand, it is equally clear that New York need fear neither this nor any other rivalry. Her position as the emporium of the Western Continent is fixed beyond a shadow of doubt.

T. C. CLARKE, C. E.,
Port Hope.

Table shewing the freight of a barrel of flour from May 1st, to December 1st, from Montreal and New York to Liverpool, in the years quoted, in Sterling Currency:

NEW YORK TO LIVERPOOL.

	s.	d.
Average in 1846	2	8
1847	3	9
1848	1	8
1849	1	7½
1850	1	3½
1851	1	1½
1852	1	4¼
1853	2	6
1854	2	6

MONTREAL TO LIVERPOOL.

	s.	d.
Average in 1846	5	2
1847	5	4
1848	4	2
1849	3	6
1850	3	0½
1851	2	11¾
1852	2	11½
1853	4	3½
1854	3	2

B.

TORONTO, 11th October, 1854.

SIR,—The Survey for a Branch Canal to connect the Welland Canal with the mouth of the Niagara River, which was entrusted to me by the Town Council of Niagara, in May last, is now completed, and I have the honor to report as follows, on the merits of that projected undertaking:

The main questions suggesting themselves for consideration in treating of the long mooted project of the "Lateral Cut," are threefold:

1stly. The abstract necessity of increasing the facilities of navigation between Lakes Erie and Ontario.

2ndly. The scale on which such improvements should be designed.

3rdly. The merits of the Niagara River as a Harbor and entrance for the Canal; and the feasibility of the route of the proposed "Cut," thence to its point of junction with the present one, on the summit of the so-called "Mountain," at the Village of Thorold.

The immense ratio in which the trade of the Western States has yearly continued to increase since the first opening of the Welland Canal has rendered it apparent that the existing artificial outlets from the Lakes to the Ocean will soon prove insufficient to pass the ever-increasing tide of produce which annually sets from West to East. Acting upon this conviction, the State of New York has recently appropriated immense sums, amounting to nine millions of dollars, towards enlarging her already costly Erie Canal. Numerous railways, tending sea-ward, have also been called into existence, to share the surplus trade that does not, or cannot, find its way by water from the Upper Lakes to the great commercial marts on the Atlantic sea-bord.

The Welland Canal, by far the most important artificial passage for those articles of commerce which constitute the Western trade, has already undergone two stages of existence. Commenced in 1824, it was first used as a channel of intercommunication between the higher Lakes and Ontario in 1829; capable, though presenting a somewhat rude and primitive style of construction, of locking through vessels of about 100 by 18 feet, with a light draft of water. In 1842 it began, under the auspices of the Provincial Government, to emerge from its infantile state of wooden locks, with, at most, seven feet of water on the sills, until, five years later, it assumed the higher order of existence in which it is now seen—adapted for vessels of 150 by 26 feet, drawing from 9 to 10 feet of water, and measuring 400 tons burden: the substantial and permanent manner in which all its structures have been executed, bearing evidence to the fact that the projectors of the then called "enlargement," considered that they were amply providing for the commercial requirements of the next half century to come, at least. If those calculations have proved erroneous, it is at all events satisfactory to reflect that the advance of civilization and commerce has outstripped the most sanguine expectations of the few farseeing men with whom the Welland Canal was from the first a favorite "Hobby," and to whose patriotic exertions in its behalf Canada stands largely indebted for the development of her resources. It is, perhaps, equally well also, that the expenditure hitherto incurred should have erred on the side of "too little," instead of being, as might have been the case, indiscreetly in advance of the wants of the trade and the means of the country; and it is further gratifying to know that, owing to the progress which is so rapidly developing itself, internally and without, the Province is now in a condition to plan and commence a system of artificial navigation suited to the capacity of her unrivalled inland waters for all time to come, and the perfecting of which system is alone wanting to render the St. Lawrence undisputed mistress of the commerce of the Great West.

In such a system of navigation the Welland Canal must ever be the main link, and that it, in its present state, is fast becoming inadequate to the growing demands that are made upon it is hardly to be questioned. The crowded state of the reaches between locks, and the jostling of vessels to get through during the latter weeks of last season's navigation, and the consequent outcry amongst the owners and captains of vessels, are facts "common in men's mouths," scarcely calling for evidence to substantiate; though, if evidence were necessary, it is amply furnished in the Petition submitted in January of the present year to the Commissioners of Public Works, bearing the recent signatures of upwards of one hundred and forty merchants, forwarders, ship-owners, and others: who estimate the damage accruing from detention in the Canal, last season only, at no less a sum than $259,510. The same petition had previously been laid before both branches of the Legislature, as far back as in May, 1850; having at that time no fewer than eight hundred and fifty-two signers, representing a capital of ten millions of dollars then embarked in the Lake trade. It may then be looked upon as conceded that that trade, since largely increased, as well as the interests of Canada generally, demand an enlargement of the capacity of the Welland Canal.

That the artificial navigation and river improvements hitherto undertaken and *carried* out in Canada, both by the Imperial and Provincial Governments, are wanting in *system*, is scarcely to be questioned. On the Ottawa and Rideau route, for instance, we find no fewer than three different sizes of locks; and on the St. Lawrence, (in which I include the Welland Canal), we have also three sizes; all dissimilar to those of the Ottawa. Under such conditions, the lesser dimensions must, to a great extent, rule the size of vessels navigating those waters, rendering the locks of later construction and increased capacity in many instances useless: or, at all events, of little higher use than their old-fashioned forerunners.

The largest locks on the St. Lawrence navigation are to be found on the Cornwall Canal—200 by 55 feet. The other "enlarged" ones are of similar length but all ten feet less in width. Those of the Welland, above St. Catherines, as already stated, are 150 by 26 feet: the depth of water being in all cases nine feet.

This medley has proved a great and crying evil to the commercial interests of Canada; preventing the most capacious of our Canals from yielding as large returns as their cost would warrant, and debarring the St. Lawrence from much of the trade that, under other conditions, would follow that channel to the Ocean as naturally as the waters of the Great Lakes.

Taking Fond-du-Lac, on Lake Superior, as the head, and tide-water, anywhere in the Gulf of St. Lawrence, as the foot of our inland navigation, the question next suggesting itself, then, is the scale of lockage and canalling suited to the natural capacity of the Lakes in conjunction with the River; in other words, what may be the extreme size of craft that, shipping her cargo some fifteen hundred or two thousand miles inland, might, without breaking bulk in the interim, transfer it to sea-going vessels at Quebec or Halifax?

Much as we have already effected in the improvements of our navigable waters, and it must be admitted that the St. Lawrence Canals were boldly conceived and executed looking at the then condition of the Province, I do not think we can point to any one of our works as a standard of size on which to model those that may be in contemplation. Generations of steamers, progressively increasing in size, are built and pass away without ever having floated beyond the limits of their native lakes. Were our Canals large enough, the largest of these might make the voyage above sketched,—from Lake Superior to the sea,—and make it, too, with profit to their owners; for I take it to be a received axiom with the shippers on these waters, that the cost of carrying merchandise is in inverse ratio to the size of vessel employed:—the larger the vessel the cheaper the transport. The elements of a vast and, hitherto, almost untried trade exist in the mineral regions of Lake Superior; a species of trade, too, that would seek water-carriage in preference to any other where long voyages could be accomplished without involving trans-shipment I allude to the transport of ore and metal in bulk, furnishing one substantial reason why the Welland Canal should be of size sufficient to pass the largest vessels afloat upon the Upper Lakes. The same reason will apply to the carrying trade of the West, generally; the merchandise sent out, consisting principally of grain, flour, and such like bulky commodities, inconvenient of trans-shipment. Any one observant in such matters who may lately have visited Chicago, cannot fail to have been struck with the immense extent of wharfage now in course of construction along the Lake front of the City; evidencing the importance of her shipping interests, and going far towards establishing the belief that the Lakes ever must command the balance of such trade over railways: Chicago possessing, more than any other city of the West, perhaps, the advantages of railway exit sea-wards. In support of such opinion, I would simply adduce the fact of its costing seven cents to carry a bushel of wheat from Chicago to Detroit (281 miles) by rail, whilst alike sum will pay for the carriage of the same measure of grain from Chicago to Buffalo, (nearly 900 miles), by water. In enunciating these views, I do not wish to be understood as placing our water communication in antagonism with the rail. Each has its mission to fulfil, with ample scope for successful operations. Without the

Lakes the " West " would be long in arriving at the point of civilization she has already attained; her rapid growth demands and ensures the construction of railways to an extent and with a success unknown in any other part of the world.

Entertaining such views, then, I believe we must turn to some other quarter for a standard on which to model our future plans of navigation, instead of adopting one from our own motley assemblage of locks. The Americans, ever awake to the commercial interests of their country, have, in the Canal they are now constructing to give access to Lake Superior, set us an example by which we would do well to profit in devising future improvements for the several links in the long chain of navigation to which it belongs in common with the project to which this report more particularly refers. The width of their Canal, on bottom, is 100 feet; their locks are 850 feet in length by 75 feet wide; the depth of water 12 feet. These gigantic proportions will receive the largest of those splendid steamers that have long been afloat on Lakes Erie, Huron and Michigan. Vessels of like burden will, doubtless, also belong to Lake Superior, when placed in navigable communication with her sister seas below,—an event which will add at once 335 miles to our chain of interior navigation; and the time will surely come when such steamers, laden in the ports of the vast fresh-water sea now about to be enfranchised to the mercantile world, can descend into Lake Ontario, bearing the mineral treasures of the north and the agricultural riches of the west on their first stage towards the markets of the old world. I propose, therefore, to plan the " Niagara Lateral Cut " on a scale commensurate with that of the Sault St. Marie Canal.

From the suggestions above put forth, it may be gathered that the project under discussion is looked upon as destined to occupy a higher position than that of a mere subsidiary branch of the Welland Canal, the reconstruction of which on the plan proposed would be tantamount to making an entirely new work. I conceive that the so-called " Lateral Cut " should be the first step towards the construction of a great Ship Canal, connecting Ontario with the Lakes above; and, looking forward to the unlimited commerce that will yet be carried on in these waters, that the mouth of the Niagara River—a natural harbour, of vast space, ample depth of water, great security, open the year round, and demanding no outlay for construction or maintenance—is, as an entrance for such Canal, entitled to the preference over any artificial haven we might possibly construct.

In the severe north-easterly gales which sweep the Lake for days, and sometimes for weeks together, every Spring and Autumn, as well as in the north-westerly and and south-easterly blows, which, though of short duration, are violent while they last, the mouth of the river stands unequalled as a harbour of refuge. I have heard it objected to it that in the prevailing winds, which are south-westerly, vessels have some difficulty in beating-in, wind and current being both adverse; but this objection applying, of course, to sailing craft only, could be easily neutralised, where it would be so well worth while to do so, by the application of a steam-tug. The rapidly increasing importance of the trade would probably render such an auxiliary desirable in any case; and outside the mouth there is a broad road-stead, where the whole fleet of the Lakes might securely ride at anchor on the bar, if that, in Lake signification, can properly be termed a bar which which has from two and a half to three fathom soundings on it at low water. For vessels outward-bound the prevalent wind is highly favorable, enabling them to drop easily out of the river—not a trifling advantage when it is remembered how largely the balance of trade is in that direction.

As above observed, sailing vessels only could be adversely affected by the sole natural objection that has, as far as I can learn, ever been urged against the Niagara River as a harbour; it can have no force in reference to propellers—and there can be very little doubt but that, especially with such a Canal as is here proposed, the latter class of vessels is destined to wield the preponderance in the carrying trade of the Lakes.

The only other exception, I believe, that has ever been taken to the river harbour, viewed more particularly as an entrance to the Welland Canal, was of a military nature, owing to its proximity to the American frontier, and the consequent liability of vessels frequenting it to hostile embargo in event of war. The time has ceased to be, however, when that, which was strongly urged, and with reason, in 1824, could be quoted as a valid argument against turning to the purposes for which nature has so admirably fitted it, the finest harbour on Lake Ontario.

The place I have selected as the point of departure for the new Canal from the waters of the Niagara River, is in a little bay just before the dock-yard, and close on the north side of old Fort George. Thence to its junction with the Welland, above lock 25, at the village of Thorold, the distance by the surveyed route is 12½ miles; the ground, generally, being favorable, in a more than common degree, for the construction of the work. In point of directness it is almost a straight line; the first 10 miles being absolutely so, and the remaining 2½ miles winding easily up the "mountain" with four gentle curves. The sole objectionable feature in this location, and one which, with locks of the dimensions herein proposed, will apply equally, I imagine, to any other possible route from Thorold to the Lake, not excepting that of the existing Canal, is that some of the locks will have to be built "in combination"—a system of lockage to be shunned, where practicable so to do. The elevation of Welland Canal water, at the point of junction, is 317 feet above the ordinary surface of the Lake: which ascent is to be surmounted by 25 locks, varying in lift between 9 and 14 feet.

The general arrangement of lockage will be nearly as follows:—Immediately at Niagara, ascending out of the river, four locks combined; aggregate lift 55 feet. Between these and the Queenston and Grimsby road (8½ miles) there will be seven; least length of reach between any two of them, 700 feet; average length of reaches being upwards of a mile. At the crossing of the Queenston and Grimsby road, on Mr. Secord's farm, lot No. 2, Grantham, there are to be two locks (11 and 12) in combination. The next four, as far as foot of No. 17, will be separated by levels of 4000 feet to 800 feet in length. Of the remaining nine, one (No. 19) stands isolated, with a level of 500 feet below, and one of 1000 feet in length above it; the other eight will be in three distinct flights, of two, three, and three locks respectively. I give this arrangement merely as exhibitory of the general design, suited to the section of the ground, but subject, of course, to modifications and improvements in carrying out the details of construction.

The cutting on the first ten miles is very favorable, varying from 5 to 12 feet in depth, and all in earth. The two last miles present a somewhat rough section, and will be partly in rock; and the junction must be effected by a cutting of some 25 feet in depth, 1500 feet in length, and composed of hard, compact earth, overlying limestone rock, through both of which materials it will be necessary to excavate. This cutting will form the only difficult or *extra* costly one upon the route: corresponding in character to that known as the "little deep cut" on the Welland Canal, of which, in fact, it will be an extension.

The water courses to be crossed are ten in number: the principal ones being those known as the "Two Mile," "Four Mile," "Eight Mile," and "Ten Mile" Creeks; all of which will be served by culverts of moderate dimensions. The section of the ground admits in all cases of the drainage of the country being passed underneath the Canal; and the circumstance of its not being, in any instance, the recipient of the flood-water of the circumjacent district, may be looked upon as not the least of the advantages which this route may claim over that to Port Dalhousie.

I have next to deal with the cost of the undertaking. The figures referring to a scheme of so great magnitude, must necessarily sum up largely, and the construction of the "Lateral Cut," on the scale proposed, to wit, general width of Canal on bottom 100 feet, ditto at water surface 158 feet; locks 350 feet in length, by 75 feet wide, with an available depth of water of from 11 to 12 feet—will involve an expenditure of not far short of one million pounds currency: a detailed estimate of which is appended in tabular form. I doubt much whether the present Welland Canal could be enlarged to similar dimensions, between Thorold and Port Dalhousie, for an equal sum, to say nothing of the inevitable embarassment certain to accrue to navigation during the progress of the works, and the consequently ensuing claims for "damage"—an item which it would be idle to attempt to estimate—and I am very sure that, apart entirely from the advantages contended for in favor of the river entrance, no new route can be found that will at all bear comparison, in any engineering point of view, with the one herein laid down.

So capacious a Canal as that contemplated by this large estimate of outlay could, of course, only be made available, in its highest sphere of utility, by having the upper portion of the Welland Canal enlarged to corresponding dimensions, or, by devising some other plan to make the communication, whatever the scale adopted, complete from lake to lake.

In that portion of the work to which my above estimate has reference would probably be involved one half the entire cost of completing the project through to Port Colborne; one lift lock only, at Allanburgh, to attain Lake Erie level, being called for above Thorold. The Welland Canal, as now seen, has cost, from first to last, about £1,400,000. The cost of carrying out this new project from Niagara to Port Colborne would be likely to border on £2,000,000. I believe, however, that the greater part of the enlargement of the long level between Allanburgh and Lake Erie might be judiciously, perhaps indefinitely, deferred, and an equally convenient and far less costly plan resorted to for affording to large, first-class paddle steamers and propellers the desired facilities of transit between the lakes. This is to be effected by recurring, in a measure, to the original design for the old Welland Canal—in turning to its proper account the free-water navigation afforded by the upper Niagara and Chippawa, or Welland Rivers. From Black Rock, below Buffalo, on the American side, and from Fort Erie, on ours, these points being practically the foot of navigation for merchant craft at present, there is sufficient depth of water for vessels drawing 10½ feet, down to the mouth of the Chippawa. Excepting a short obstruction at the mouth, and one inconsiderable bar within, the Chippawa Creek has from 12 to 15 feet soundings from Port Robinson, 10 miles above the mouth, to its confluence with the Niagara River; there being in that distance no appreciable fall. Here then we have a natural navigation, requiring but little outlay to render it available to the full capacity of the proposed Ship-Canal, all the way down from Lake Erie to within six miles of the head of the "lateral cut." To make these six miles navigable for the class of vessels we have in view, would call for the widening and deepening of the present Canal to the named dimensions, and the construction of one lock at Allanburgh and one at Port Robinson; the latter to lift from the surface of the Chippawa to the Erie level of the Canal, the difference being about nine feet. The expense attending this portion of the work of enlargement would probably be covered by £325,000: thus securing to us a complete steamer navigation, between Lakes, for a gross outlay of £1,325,000; leaving in undisturbed possession of schooner craft the Canal as it now is—tantamount, probably, to doubling its capacity for the passage of that denomination of vessel. There is trade sufficient "looming in the future" to keep both channels occupied to the full extent of their respective capacities.

I believe, Sir, I have now adverted to the most important questions bearing on, the matter you have submitted to me, and will conclude by taking leave to observe that the project, great as it may appear, is surely well worthy the consideration of the Legislature, as it is plainly within its grasp to achieve it, when it is borne in mind how far the results sought to be attained would surpass in magnitude the undertaking itself; for even allowing the corresponding improvements of the river navigation to be deferred for years, the new Welland Canal would open a great, uninterrupted steamer navigation between all the Lakes, and penetrating upwards of 1100 miles into the heart of a vast continent. If we do not undertake this most important and necessary work on our side, the Americans assuredly will on theirs, and what they undertake they will achieve. The natural advantages of situation, local facilities for construction, &c., are all with us; surely then we will not resign without a struggle, that supremacy of the great Lakes which the enviable possession of the noble river St. Lawrence, and the hitherto exclusive control of the connecting link between it and the inland seas above, have long conferred upon us. The success so far attending the experimental operations for removing obstructions in the rapids between Prescott and Montreal, under the scientific and skilful direction of Messrs Maillefert and Raasloff, would seem to promise the speedy attainment of one decisive step towards preparing the great river of which Canadians are so justly proud, to "fulfil its destiny,"—and the examinations now going forward to test the feasibility of making a Ship Canal to connect the waters of the St. Lawrence with those of Lake Champlain will solve another important problem,—as to whether there may not one day be a great southern communication open to our vessels, reaching tide-water, via the Hudson River, at New York. Of this I am, at all events, convinced: that where the vast operations of nature ask for comparatively so little artificial aid towards bringing her hundreds of miles of navigable water into useful connection, the doctrine which is latterly finding so many adherents in the mercantile and scientific worlds is not strictly sound,—namely—that the day of Canals has gone by, and that henceforward Railways shall reign in their stead.

I have the honour to be,
Sir,
Your obedient servant,

W. SHANLY.

John Simpson, Esq., Mayor,
Niagara, C.W.

NIAGARA LATERAL CUT.

ESTIMATE OF COST.

Quantities.	Denomination of Work.	Price.			Amount.		
		£	s.	d.	£	s.	d.
3,000,000 yds.	Earth Excavation	0	1	2	175,000	0	0
90,000 "	Rock	0	5	0	22,500	0	0
25	Locks	22,500	0	0	562,500	0	0
10	Culverts	2,500	0	0	25,000	0	0
17	Waste Weirs	1,500	0	0	25,500	0	0
10	Bridges	1,500	0	0	15,000	0	0
21	Miles stone facing toBanks	2,000	0	0	42,000	0	0
	Entrance Piers & upper Wharves				20,000	0	0
	Coffer-dams, &c.				5,000	0	0
	Lands and damages				50,000	0	0
	Engineering and Contingencies				47,125	0	0
		Total			£989,625	0	0

C.

OTTAWA SURVEY.

SIR,—I have the honor to report on the Ordnance Navigation of the Lower Ottawa, viz: the "Carillon," the "Chute aux Blondeaux," and the "Grenville" Canals.

The lengths, capacity and relative position of these works are as follow:

1st. The Carillon Canal, commencing at the head of the Lake of the Two Mountains, about 22 miles above St. Ann, has a length of cutting of $2\frac{9}{100}$ miles
Height of Lockage, upwards, at head .... 13 feet.
Do Do downwards, at foot........................ 23 do.
And is supplied by a feeder from the waters of the North River... $\frac{62}{100}$ m. long

There are three Locks; the one at the head, known as No. 3, lifts 13 feet, that being the height of feeder surface above the ordinary level of the Ottawa at the head of the Rapid.

The other two (Nos. 1 and 2) are combined, and situated at the foot of the canal; their lifts are 13 and 10 feet respectively, making an elevation of 23 feet above the Lake of the Two Mountains.

Deducting from which the lift of the head Lock (No. 3) .... 13 feet.
Leaves for the total fall in the Carillon Rapids but .... 10 "

The dimensions of the Locks are;

Net length from point to point of sills..............................128 feet.
Net width between quoins.................................... 32 " 6 in.
Least water on sills calculated for.............................. 5 " 6 in.

In cross section the dimensions of the cuttings are very variable, being from 18 to 40 feet wide on bottom, with irregular slopes; the surface widths vary from 50 to 90 feet; the extreme depth of cuttings is 22 feet; the average all over about 10 feet: the whole in rock. The canal is designed for a minimum depth of water of 5½ feet, but not more than five feet can safely be counted upon for purposes of navigation.

The fluctuations of the Ottawa water above and below the Carillon Rapids is very considerable; the highest stage on record, dating the 15th May, 1845, registered on lower mitre sill of Lock No. 1..................... 17′ 6″
And the lowest is recorded on the 23rd September, 1846, when it registered on same gauge................................ 5′ 6″

Above the Carillon Canal there is a reach of still river navigation for $3\frac{65}{100}$ miles, reported to have a great depth of water throughout, but I have deferred taking the soundings until the ice shall afford facilities for doing so with accuracy.

At the head of this still "reach" we come to the second link in this chain of navigation, known as the

Chute aux Blondeaux Canal,

which has a length of but $\frac{16}{100}$ of a mile, with one Lock (No. 4) of 3 feet 10 inches lift, and of equal capacity with those below it.

The average width of the the Chute aux Blondeaux cutting (all in rock) is about 37 feet, with almost perpendiclar sides.

The mean depth of excavation is 28 feet, and of water available for navigation 6 feet. From the head of the Chute aux Blondeaux we have deep river navigation for one mile, bringing us to the foot of the

Grenville Canal,

The length of which is	$5\frac{78}{100}$ miles.
The Lockage	46 feet.

That being the fall of the Long Sault Rapids, which is overcome by seven Locks, presenting a singular medley in point of dimensions.

The four lower ones, Nos. 5 to 8 inclusive, were, I presume, intended to be
In length from sill to sill .... 129 ft. 6 in.
And in width between quoins .... 32 ft. 6 in.
But from imperfections of construction the actual lengths vary between .... 131 ft. 8 in. & 129 ft. 1 in.
And the width between .... 32 ft. 3 in. & 32 ft. 6 in.

The Locks are combined in pairs, Nos. 5 and 6 are situated at the foot of the canal and lift 8½ and 8 feet respectively ; Nos. 6 and 7, some 1,500 feet higher up, have each a lift of 8 feet.

The remaining three locks are isolated from one another and at long intervals apart.

Nos. 9 and 10 have lifts, the one of 6 feet the other of 7½ feet, while No. 11, situated at the head of the cutting, acts as a guard lock.

In their main dimentions they differ entirely from those already enumerated and to a certain extent even from one another.

Their measurements are as follows :

Lock No. 9	106 ft. 8 in. long	×	19 ft. 5 in. wide.
" " 10	107 ft. 3 in. "	×	19 ft. 4 in. "
" " 11	108 ft. 6 in. "	×	19 ft. 3½ in. "

From these figures it will be seen that the capacity of all these works is practically controlled by Lock No. 11, and consequently the size of vessels capable of navigating the Lower Ottawa, limited to about 100 feet in length by 19 feet in width. The depth of water on the sills of these small Locks is the same as in the larger ones below, viz :

At low water	5 ft. 6 in.

The sectional area of the Grenville Canal is not uniform, the width of bottom at 5 feet below surface is generally about 15 feet, though it is sometimes as much as 20 and occasionally even 30 feet wide.

Its greatest width at water surface is	64 feet.
Least width on same line	23 "
And the general surface width about	44 "
Extreme depth of cutting is	25 "
The mean depth about	11 "

The excavations are wholly in rock, and the bottom line is so irregular that not much over 5 feet can be counted on as the maximum draft of vessels that could be floated through the cutting.

The following abstract will place the leading features of the whole of this portion of the Ottawa navigation in a more condensed form for reference than as above detailed :

Total distance from foot of Carillon to head of Grenville Canal.. 12$\frac{68}{100}$ miles.
Of which the portion canalled is :

1st. The Carillon section	2$\frac{9}{100}$ miles.	
2nd. Chute aux Blondeaux	$\frac{16}{100}$ "	
3rd. Grenville section	5$\frac{78}{100}$ "	
Total length of cuttings	—	8$\frac{3}{100}$ miles.

The total lockage is.... 85 ft. 10 in.
Distributed as follows :

1st. On the Carrillon section, three locks, Nos. 1, 2 and 3	36	0
2nd. Chute aux Blondeaux, one lock, No. 4	3	10
3rd. Grenville section, seven locks, Nos. 5 to 11	46	0

Of these eleven locks the first eight have an effective capacity of.. 128 × 32 feet.
The other 3 can be reckoned at .... 106 × 19 "

Twenty-six feet of the lockage may be put down as lost, owing to the water surface of the Carillon section, the supply for which, as already observed, is drawn from the North River, being at an elevation of 13 feet above the general level of the Ottawa at the upper entrance of the Canal. This mode of construction involves the necessity of two lockages more than the natural fall of the river (which is but 10 feet) would exact, and will have to be done away with, and the canal fed from the main river, whenever an enlarged system of navigation may come to be adopted for the Ottawa. To treat of the best manner of carrying out such an improvement will belong more properly to my future report on the general result of the "Ottawa Survey," and need not therefore be more particularly noticed here.

I have now to advert to the existing condition of the works, and with regard to their most vital parts—the locks—I beg leave to report, that they are all in bad order, some of them indeed in an almost ruinous condition. Nos. 1 and 2 at the foot of the Carillon Canal, especially, are in a dilapidated state: the walls of the latter are so leaky that when the lock is filled the water percolates through them and has worked passages behind and through those of number one, till the mortar is nearly all washed out and the walls become so rickety as to overhang perceptibly —and are, in fact, not safe.

To render these two locks permanently secure it would be necessary to have them pulled down and wholly rebuilt from the foundations (using of course the same stone) but in view of the mooted enlargement of the scale of Ottawa navigation, temporary repairs only are, I presume, to be calculated for in reference to existing works; even for such partial repairs, however, as would render the two lower locks of the Carillon section properly available during the least period, say five years, that they are likely to be still required, the walls of No. 1 should be pulled down to low water level and reconstructed: whilst the lower recess and quoin walls of No. 2 (adjoining No. 1) should be wholly taken down and relaid thoroughly in cement mortar so as to cut off all leakage between the two locks.

The upper recess of No. 2 and both those of No. 3 will require to be dealt with to a certain extent after the same manner, and I estimate that the three locks of the Carillon section will require, to put them in servicable condition, an expenditure of £3,000.

At the point where the waters of the North River are diverted into the feeder two dams have been constructed, one on each side of an island, which there *divides* the stream into two branches. These dams are in a miserably inefficient *state of* repair, consisting of little more than heaps of loose stone thrown in indiscriminately, and which are to a great extent washed away by the ice and freshets every spring, thus calling for constant renewal. From this cause the navigation of the Canal is much impeded during the months of August and September through want of an adequate supply of water.

Proper dams of a sufficiently permanent character can be constructed for about £300.

The upper entrance of this canal is obstructed by a bar, consisting of the remains of an old earthen dam. The extent of this obstruction is not great, but I have left its actual dimensions to be ascertained from ice soundings. It can very easily be dredged out, and at a small cost, probably not to exceed £60, if a dredge can be conveniently procured.

There is a somewhat similar shoal at the foot of the Chute aux Blondeaux Lock, created by the falling in of a protection wall and some embankment. The stones and earth from which now lie heaped in the centre of the channel. The full extent of this obstruction also remains to be ascertained, but I do not think that it exceeds 400 cubic yards, and may probably be removed for £50.

No. 4 Lock, which has less than four feet lift, can probably be made to serve some years longer without any great extent of repairs, but this as well as those on the Grenville section, Nos. 5 to 11 inclusive, will require patching from time to time, consisting chiefly of the partial taking down and relaying in cement (to obviate leakage) of portions of the gate recess and hollow quoin walls.

From the mere external appearance of the lock walls it is not easy to calculate to what extent the relaying of the masonry may be necessary, but I estimate that an average sum of £400 per lock would be sufficient to maintain each in an efficient state for service for some years to come. This gives a gross sum of £3200 for the repairs of the eight locks above the Carillon Rapids. The expenditure of which may be spread over the next two years.

Across the lower entrance of the Grenville cutting there extends a bar of rocks which impedes the navigation at the lowest stages of the water, its surface being eighteen inches above the level of the mitre sill (the steamers on this route rarely draw more than four-and-a-half feet though the canals are designed for five-and-a-half.) Immediately outside this bar, which is about twenty feet in width, there is very deep water, and two or three shots judiciously lodged should have the effect of wholly removing it: the cost of which operation, there being, as I understand, the requisite appliances for under water blasting now in use at St. Ann, need not exceed £75.

The upper entrance is also barred; but to all appearances only by an accumulation of loose boulders and gravel washed down from time to time from the banks. I design to have thorough soundings taken here as at the points below when the ice has formed, and am of opinion now that by means of the dredge or the rake this shoal can be removed for less than £80.

It is not unlikely that the rake may prove fully sufficient for, and if so would certainly be the cheapest mode of getting rid of all these bars except the rock one already alluded to.

The lock gates do not call for any immediate repairs, being in sufficiently sound condition to withstand the ordinary wear and tear of next season's work at all events, and in the foregoing items, an abstract of which is given below, is I think embraced all the expenditure at present necessary to be estimated for. The cuttings being, as I have said wholly in rock, the section of the canals remains nearly as originally excavated, no deposit large enough to affect their utility having taken place.

ABSTRACT.

Estimated Cost of Repairs, &c.

Partial taking down and relaying eleven locks..........	£6,200	0	0
Reconstruction of dams on North River..............	300	0	0
Removal of shoals and bars.........................	265	0	0
Total........................	£6,765	0	0

The ordnance property between Carillon and Grenville embraces a strip of land along such section of canal varying in width from 50 to 200 feet and upwards: the boundaries of which are well defined by stone land marks.

Not having had duplicates yet made of the plans and sections of these works as lately surveyed under my instructions of 22nd July, I beg leave to retain he originals in my possession for the present, unless immediately required by the Department.

The whole being respectfully submitted.

I remain,
Sir,
Your ob't. serv't.,

W. SHANLY.

T. A. Begly, Esq.,
Secretary Public Works,
Toronto.

D.

Toronto, 2nd March, 1857.

Sir,—I have the honor to submit for the information of the Commissioners, the following report on the River St. Maurice works, and the various subjects therewith connected.

In the first place, in order that a just appreciation may be formed of the advantages which are resulting from the expenditure which has taken place, apart from its effects in developing the timber trade, I would respectfully invite the attention of the Commissioners to the extraordinary rapidity with which colonization is progressing in the section of country more immediately affected by these works. From the settlements back of Berthier, to those in the rear of St. Anne de la Perade, a great movement is being made towards the St. Maurice territory. Lots are occupied almost as soon as they are surveyed; and it is worthy of remark that the settlers are generally of the opinion that the farther back they proceed, the better they find the quality of the land. The principal new settlements are those extending back from St. Barnabé and Shawenegan, to the west of the St. Maurice, and from Lac Coscette and the Rivièrè des Envies, to the east. This movement on the part of the settlers has its origin in the demand for agricultural produce which the lumber trade is creating in the interior, and that, again, it is needless to say, is due to the works which have rendered the St. Maurice River available to the enterprise of the lumbermen.

The annexed map shews the position of the principal new settlements, and of the various places referred to in this report.

In regard to the timber trade, it is gradually increasing, notwithstanding the severe pressure which has been felt in that branch of business for some years past. A return of prosperity would at once have the effect of greatly extending the trade of the St. Maurice, and, as a consequence, of giving a fresh impulse to colonisation, the requirements of the lumberman always affording the best possible inducement for the settler to follow him. The revenue arising from timber dues, ground rents, &c., will, I am informed by the Crown Land Agent, amount for the present season to about £10,000.

To form a due conception of the progress which has been made, it is but necessary to consider the territory as it now is, in comparison with what it was when the works were first fairly commenced, about four years ago. At that period settlement was at a stand still, and the vast region drained by the St. Maurice and its territories an unexplored wilderness, which returned no revenue to the Government.

The unprecedented rapidity with which the works already accomplished have occasioned the resources of the territory to be developed, affords the most convincing argument as to the expediency of continuing to meet the requirements of the trade, and facilitate colonization, by such further improvements as may from time to time become necessary.

I proceed to enumerate those which I conceive to be the most indispensable at present; and, also, to report briefly on the work that has been performed during the last season—that is, since the date of my last annual report.

La Tuque.

The large dam on the east side has been completely filled with stone, and an additional pier built for its support. This renders the work, so far as it has been carried out, perfectly secure. It is necessary, however, that side piers should be built on either side of the basin, immediately below the falls, inasmuch as timber, after passing the dam, accumulates, and remains in the eddies, where the surge hurls it continually with great violence on the rocks, to its serious detriment. Side piers would effectually prevent it from sustaining any damage. It would also be necessary to excavate a point of rock and build a facing of crib work a little higher up, on the west side. The amount of excavation would be about 1,000 cubic yards, and the entire length of the side piers and facing of crib work, about 1,200 feet. The prices I have set down for the wood-work, although they may appear low, are ample, inasmuch as the timber can be had quite near the work.

The completion of the works at La Tuque has become essentially necessary, as several of the lumbermen are preparing to carry on extensive operations beyond that place.

Managance Rapids.

For the removal of the obstructions to the navigation at this place, a contract was given out last summer to the St. Maurice Lumber Company. They succeeded in accomplishing a considerable portion of the work, but the water having suddenly risen, they were obliged to suspend operations, and cannot resume them until next summer. The contract involves an outlay of £800, but an additional sum of £250 will be necessary to remove the impediments thoroughly, and buoy the channel so that steamers can pass at extreme low water.

Grande Mère.

At this place the works are in good order; new scows were provided last spring, and during the present winter the wing dam has been partly faced with plank.

Shawenegan.

A large pier was sunk in 35 feet water, above the falls, and it was of essential advantage in facilitating the work of extending the booms, and securing them in their position. The piers in the lower bay and at the Hêtre boom were raised, as proposed, to a sufficient height, and furnished with boom posts, chains, &c. The other piers proposed to be built at this place are now under contract, and the work is progressing. An additional sum of £250 will be required to complete the work now in hand, and about £187 10s. to purchase additional chains. It would also be of advantage to build a good house for the accommodation of the Slide Master and men attending the booms, for which purpose I have set down £200 in the estimate.

Grais Falls.

The booms here are in good order. The contract for the crib-slides provides for all the work at present contemplated.

Mouth of the St. Maurice.

An additional pier was built above the bridge in the east channel, and boom posts put in the other piers, as recommended in my last annual Report. On the prospect of the trade being increased, however, it would be necessary to build two additional piers in the east channel, and I have accordingly included them in the estimate.

St. Maurice Roads.

Since the lumber trade was commenced on the St. Maurice, those engaged in it had no greater difficulty to contend with than the forwarding of their supplies from Three Rivers to the navigable water at the Grandes Piles. The road made last summer by the Crown Land Department, between the latter place and Shawenegan, has done much to obviate this difficulty, but the old road from Three Rivers to Shawenegan, especially that part of it between the St. Maurice Forges and the St. Etienne Church, is still in such a state as to render it very expensive and difficult to send supplies over it. No greater boon could be conferred on the trade than to put it in thorough repair, so that loaded vehicles could pass over it with facility at all seasons; and not only would the lumbermen be benefitted, but, as this road is the main high-way leading up the St. Maurice, its improvement would have a most important and beneficial influence in promoting and advancing the settlement of the country. For the first fifteen miles of the road, that is for the part between Three Rivers and the St. Etienne Church, I have set down £100 per mile, and £75 per mile for the last eight miles on the portion between St. Etienne Church and the junction of the new "Piles Road" in Shawenegan, the whole distance being about 23 miles.

New Works.

Next in importance to the road, and the proposed additions and extensions to the works already in operation, is the improvement of the Iroquois Falls on the Vermillion. This River, as will be seen on reference to the map, joins the main St. Maurice from the westward, about eighteen miles above La Tuque. It drains a great extent of country abounding in valuable timber, but the Falls referred to form an absolutely impassable barrier to the safe descent of either logs or squared timber. In my last annual Report I proposed an outlay of £5,000—as much as should be necessary of that sum to be applied in the first instance towards sliding the Falls, and the balance to removing the obstructions between them and the St. Maurice, leaving any further improvement that might be necessary to the enterprise of individuals. If this were done, a wide extent of territory would be thrown open, and the sale of the valuable limits thus rendered accessible, would, I am confident, in the course of two or three years, amply repay the outlay.

Dams at the Grandes Piles.

Under the head of new works I may mention that it has been suggested by some of those principally interested in the trade of the River, that great advantages would result from building a dam across the St. Maurice at the Grandes Piles, whereby it is argued that a sufficiency of water would be obtained to float logs over all parts of the shoals above that place at the season of the lowest water; that the steamboat navigation would be facilitated at the Miquinnac flats and Managance rapids; and that water-power would be gained for the supply of mills and manufactories, which, it is believed, will soon be required to meet the wants of the growing settlements in that direction. On this subject I am not prepared to offer a decided opinion, having made no survey of the locality. Unquestionably it would be of great advantage to the steamboat navigation to have a greater depth of water on the Miquinnac flats and at the Managance rapids; but the building of the dam would be a work involving a considerable outlay, and I think it may, without detriment to any particular interest, be left over for the present.

Last year the working of the booms and slides was attended with complete success, the cost of maintenance being at the same time considerably less than during the previous season. This was in part owing to the lowness of the water, but chiefly to the additions which were made in the works. The improvements now proposed would have the effect of still further lessening the cost of maintenance.

I beg respectfully to submit the annexed estimate to the consideration of the Commissioners, and

I have the honor to be,
Sir,
Your most obedient servant,
(Signed,) S. J. DAWSON.

Estimate of the probable cost of the works referred to in the foregoing Report.

La Tuque—Side piers and crib facing, 1,200 feet in length, with an average height of 12 feet, and breadth of 10 feet, will require 14,400 feet new timbers facing the stream, at 7½d..........	£450	0	0			
35,000 feet round and flatted timber for bottoms, ties and sides of crib-work next shore, squared timber not being necessary, at 4d..........	583	6				0
3,400 cubic yards stone filling, the stone being close to the works, at 2s. 6d..........	425	0	0			
4,480 lbs. iron for rag bolts at 5d..........	93	6	8			
1,000 cubic yards rock excavation, at 7s. 6d..........	375	0	0			
				£1,926	12	8
Managance Rapids—To remove impediments and buoy the channel so that steamers can pass at the lowest water, an additional sum is required..........				250	0	0

Shawenegan—To complete work now in hand........	250	0	0			
To purchase 200 fathoms chain of about ¾ inch, say 100 cubic yards at 37s. 6d	187	10	0			
To build a house for accommodation of Slide Master and men attending booms	200	0	0			
				687	10	0
St. Maurice Roads—15 miles from Three Rivers to St. Etienne Church, will cost, at £100 per mile......	1500	0	0			
Eight miles from St. Etienne Church to the junction of the new Piles Road, at £75 per mile, will cost....	600	0	0			
				2100	0	0
Mouth of the St. Maurice—2 piers, 30 × 20 feet to be sunk in 12 feet water, will require 6,000 feet face timbers at 9d..................................	225	0	0			
7,000 feet flatted bottoms and ties at 6d..............	175	0	0			
750 cubic yards stone filling, at 5s....................	187	10	0			
2,240 lbs. iron rag bolts, at 5s......................	46	13	4			
				634	13	4
				£5548	6	0
Additional for superintendence and contingencies, 10s..				554	16	7
				£6103	2	7
Vermillion River—To slide the Iroquois Falls and remove the impediments between them and the main St. Maurice, will require, as per Report, a sum of..				5000	0	0
Total...............................				£11,103	2	7

(Signed,) S. J. DAWSON,
Superintendent River St. Maurice Works.

E.

OTTAWA, 11th December, 1856.

SIR,—Agreeably to instructions received by me, from the Honorable the Commissioners of Public Works, (when they were in Ottawa on the 6th day of October last,) to proceed to the Saguenay as far up as Lake St. Jean, and examine the River for the purpose of ascertaining what improvements would be required to enable parties to take down lumber from that Lake to the tide water, also the cost of the improvements, and at what time of the year the works should be constructed, and lastly, whether there is a sufficient quantity of lumber on the tributaries emptying into Lake St. Jean, to warrant the Government in expending money in improving the river.

In accordance with those instructions, I left this City on the 9th day of October, and, on arriving at Quebec, found that the steamboats had discontinued their trips to the Saguenay, but on the evening of the 13th succeeded in getting a passage on the steamer "Passport," bound for a point on the St. Lawrence, about 50 miles below the mouth of the Saguenay. I and my assistant landed next morning at Tadousac, where we were obliged to wait 4 days for a fair wind to sail up the Saguenay as far as Chicoutimi. We arrived at that place on the morning of the

18th, and, as the season was so far advanced, after procuring our outfit, men, canoes and provisions &c., we left Chicoutimi on Sunday morning the 19th for Lac St. Jean.—I thought it advisable to proceed to that place with as little delay as possible, and to make my examinations on the return trip. I was thus enabled to see all the obstructions before making any surveys, and to determine the class of improvements that would be most suitable for the River.

Arrived at Lac St. Jean by way of the Little Discharge on the evening of the 21st, I found after careful examination that both the discharges and Lac St. Jean ordinarily rise from low to high water about 18 or 20 feet, and in some places, where the river is narrow, much more.

The volume of water in the Little Discharge is about the same as in the River Gatineau, but the main discharge, I am satisfied, is 20 times larger. The improvements on the Saguenay River must be for single sticks of timber, and the only way in which lumber can be taken out of Lac St. Jean is by the Little Discharge; the obstructions are comparatively trifling, and will be easily overcome by improvements which are sure to work satisfactorily, as, fortunately, there are four channels forming the outlet from Lac St. Jean into the Saguenay Little Discharge. These I would propose to dam up, with the exception of one, and that one about one half; by this means the water can be regulated to suit the works recommended to be constructed on this branch of the River below. The damming up of those channels at the Lake can do no harm, for the water that is not required in the Little, would pass down the main discharge, while improvements further down the river would suffer no injury from floods, and at the same time would be easily managed. The accompanying sketch will shew the nature and extent of the required improvements, which, when constructed, will establish an unbroken chain from Lac St. Jean to Chicoutimi or the tide water, at which latter station a strong retaining boom should be placed.

Each of the four channels above referred to is about ¼ of a mile in length, that is from the lake to the place where they all unite: in that distance there is a fall of about 20 feet. No improvements will be required except damming up the channels at the head, as before described, which will have the effect of regulating the water in the Little Discharge.

All these channels have solid rock bottoms and bold shores. From the foot of the rapids for a distance of 3 miles, the river is broad and deep; at the lower end of this reach there is a rapid called L'Islet which falls in the distance of ¼ of a mile about 12 feet. Here there is an Island near the middle of the stream: one of the channels thus formed is safe, the other should be dammed up. The lower end of the rapid will be improved by the construction of a dam farther down the river (about two miles). The river in that distance is a fine sheet of water, broad and very deep, and if a boom 1000 feet long were placed as shewn on the sketch, 500,000 saw logs could be retained with perfect safety. From the last mentioned dam for a distance of 1½ miles the river falls about 90 feet, forming what is called Gagnon Rapid, one of the worst I have ever seen. At some places it is nearly half a mile wide, and full of large boulders and masses of rock that have fallen from the high shores. This, (Gagnon Rapid) I consider is the grand obstruction in the river from Lac St. Jean to the tide water, and the only improvement practicable is sliding. The required slide would have to be 6,750 feet long, 4 feet wide and 3 feet deep—the average height in the whole distance would be ten feet. For a foundation I would recommend bents, as requiring the smallest quantity of timber, and not being liable to settle. (*See cross section of slide on sketch.*)

The following is an estimate of the quantities and cost of materials required to improve the river, based on careful measurements and calculations:

The whole length of the 4 dams closing up the channels at the lake, of the one at L'Islet, and of those immediately above Gagnon Rapid and the head of the slide, will be about 1,250 feet, and their average height 18 feet. The quantity of timber for all the dams, say, sided timber 12 inches thick measured in the work,

	£	s.	d.
will be 57,888 feet, the cost of which at 9d. per foot will be........	£2170	16	0
Covering plank 4 inches thick B. M. 124,800 at 65s...............	405	12	0
Iron for dams in pounds, 16,536 at 6d................	413	8	0
Total cost of all the dams..............................	£2989	16	0

The quantities of materials and cost of the slide 6,750 feet long, 4 feet wide and 3 feet deep, will be as follows—viz.:

	£	s.	d.
675 pieces, cross sills 12 feet long, 12 x 12, B. M. 97,200 feet, at 65s..	£315	18	0
1350 " " braces for lower posts, 8 feet long, 6 x 6 ditto 32,400 feet, at 65s..............................	105	6	0
675 pieces for caps, 10 feet long, 10 x 10 ditto, 56,250 feet, at 65s..	182	16	3
Cubic feet of timber in stringers, 13,500 at 9d....................	506	5	0
1,125 Key Blocks 12 feet long, 10 x 10, 112,500 feet, at 65s........	365	12	6
2,250 posts for side of slide, 5 feet long, 10 by 10, 75,000 feet, at 65s.	243	15	0
2,250 short braces, 2½ feet long, 4 x 4, 7,500 at 65s................	24	7	6
Plank for slide, 412,250 feet..................................	1339	16	3
Spikes and Rock Bolts for ditto, in pounds, 6,600 at 6d	165	0	0
Cubic yards excavation at head of slide, 942 at 7s. 6d.............	353	5	0
Cost of clearing strip 100 feet wide, 6,750 feet long for site for slide, and to guard against fire.......................................	150	0	0
Cost of Bulk head, stop logs, crabs, &c..............................	100	0	0
" side boom and piers at head of slide......................	93	10	2
Total cost of slide...	£3945	11	8

Good sound white pine timber, suitable for the above works, can be found in the immediate neighborhood of their respective sites.

Estimate for a retaining boom at the head of the long slide, 1000 feet long:—This boom to be made of white pine timber, sided 15 inches thick, and to shew a face at the small end of not less than 15 inches, and to be in lengths of not less than 40 feet each. To be skein-chained with ¾ inch cables, and receive caps and pickets at each point. Caps to be 12 feet long and 6 inches thick. Pickets to be of white oak, 5 inches in diameter, turned in a lathe. All the materials before described to be put together and coupled at the rate of 5s. per lineal foot.—£250.

I have always found that booms made on the principle above specified were the strongest and most durable.

From the foregoing figures it will be seen that the total cost of improvements recommended by me for the Little Discharge is:

	£	s.	d.
For Dams..	£2989	16	0
" Long Slide, &c..................................	3945	11	8
" Boom..	250	0	0
In all..	£7185	7	8

These improvements are all that would be required, and when consummated, timber can be run from Lac St. Jean to the tide waters at any season of the year, provided the ice forms no obstruction.

As I was further instructed to get all reliable information respecting the quantity of timber around Lac St. Jean and its tributaries, I called on M. Duberger, the resident Crown Timber Agent at Chicoutimi, who kindly furnished me with a report on that subject, and also gave me a sketch compiled from French field notes of explorations and measurements in that section of country, by the R. R. Father Jesuits, both of which I have the honor to forward herewith to the Department. I also obtained information from other sources, corroborative of all that is stated in the documents transmitted. Such being the case, I am of opinion that the Government would be justified in making the outlay recommended. Moreover, a large revenue would be derived when these works are completed, for, supposing that only 200,000 saw logs would be cut annually, the Government duty, at 5d. per log

would amount to..	£4166	13	4
Slidage on same quantity, at 2d. per log...........................	1666	13	4
And if 1,500,000 feet of white pine pine were annually cut (and this is a small quantity for so large a territory) the duty on the same at ½d. per foot would be..................................	3125	0	0
Slidage and Boomage on do., at 4d. per stick, 70 ft. being the average	357	2	10
	£9315	9	6

Unless the river is improved by public or private enterprise, the country can derive no benefit from the vast timber lands situated around Lac St. Jean.

I have been informed that the country near the Lake is favorable for farming operations, and if lumbermen were actively engaged in the neighborhood, settlers could dispose of their surplus produce at high and remunerative prices.

Although I was not called upon by the Honorable the Commissioners to report on any other improvements than those I have already mentioned, still it appears to me that there will, in all probability, be a great many applications for limits on the rivers emptying themselves into Lake St. John, and that it will be indispensable to have a retaining boom at the head of the tide water at Chicoutimi.

Mr. W. Price has a boom 2¼ miles long, in a very good position, but it is too slight to be of much service in holding a large quantity of timber. That gentleman has a large number of anchors and chains, which support his old boom, and if he gave them for the new one, the expense would be very much lessened, I therefore estimate the cost of a strong boom, 2¼ miles long, without the anchors and guy chains at £2500.

If the Honorable the Commissioners should decide that the Saguenay works be proceeded with, I would recommend their being done by contract, and that the contractor or contractors be allowed one year to complete those in the Little Discharge. Articles of agreement should be executed as early as April next, which will enable parties to procure materials for the summer's work; this can be attended to when the water is falling, as the dams at the head of he Discharge cannot be built till low water. If the retaining boom at Chicoutimi is to be made (and I do not think that lumbering operations can be carried on successfully without it) the contractor should be allowed six months longer than the time in which the other works will have to be completed, as lumber suitable for the boom will have to be procured near Lac St. Jean, and passed through the new slide. By this arrangement the boom would be in its proper place, and ready to receive timber; in the spring following.

The accompanying sketch shews the Little Discharge from Lac St. Jean, the sites of the proposed works, the elevation of dams, cross sections of dam and slides, and the principle on which the booms are to be put together; and I trust that it will afford to the Honorable the Commissioners the information desired.

I have not sent specifications for the construction of the side dams and booms, but shall do so if required, as I have copies of my notes and drawings.

In submitting the above,

I have the honour to be, Sir,
Your most obedient servant,

(Signed) HORACE MERRILL,
Superintendent of Ottawa Works.

F.

MONTREAL, 10th October, 1856.

Agreeably to a reference made in July last, relative to improving the Rivers Yamaska, St. Francis and Nicolet, situated on the south side of Lake St. Peter, I cursorily examined, in the early part of September, these streams, from their junction with Lake St. Peter upwards, to such points or places in the interior where the channels become more or less barred by obstructions, of so formidable a nature that to remove or otherwise overcome them appeared to exceed the limits contemplated in my instructions, and, if I mistake not, in an equal degree, at least exceed the extent of trade likely to be benefitted.

The accompanying sketches, projected from observations made in passing, shew the correct soundings taken at the time along the different channels pointed out by experienced pilots, and give a tolerably fair representation of the relative distances, position and outline of the respective rivers, so far as examined, which it is believed will afford, in the absence of more elaborate surveys, a tolerably correct idea of the capacity of each, its suitableness or otherwise for improvement, and furnish the chief data on which to base an approximate estimate of the expenses of such improvements as may be considered judicious to render them in some measure navigable to a class of vessels adapted to the trade, so far as the natural difficulties encountered will admit.

But before entering into detail, it is considered proper in order to avoid repetition, to bring under the Commissioners' notice a few leading facts applicable to each case, if not to most of the Rivers that discharge into Lake St. Peter.

It being well known that the ship channel between Quebec and Montreal passes nearly through the centre of, and parallel with the Lake, that between it and the shore on either side there is a broad margin of shoal water, which on the south side at some places is fully three miles in width, and that these flats consist generally of soft clay, occasionally covered with fine sand, especially at the outlets of rivers where sand and other debris seem to have been deposited from one quarter to half a mile outwards from the shore, such deposits being found to a greater or less extent in every case—the place most free from it being the western outlet of the River Yamaska, a branch several miles in length, running nearly at right angles to the main body of that river, and parallel with the St. Lawrence.

It is not intended to discuss here whether these bars result from the current of the Rivers meeting the still water in the Lake, or are formed through the means of ice carried down in large masses that get grounded at the mouths of the rivers before the Lake ice breaks up, thereby preventing the detritus from passing off.

It is sufficient, for the present purpose, to be aware that these effects are produced by a cause or causes not likely to be removed by merely deepening the channel, as the experience of every one who has given attention to such subjects fully bears out the fact that where bars similarly placed have been removed by dredging, they in general have again accumulated, unless efficient means have been adopted, to prevent the possibility of their formation, and it is no less true that in many cases the best devised plans for the protection of artificial channels have proved insufficient to effect the object, particularly at mouths of Rivers subject to frequent variation of level, that in their course carry with them much alluvial soil, whilst the direct, and in some cases indirect action of ice that collects at the outlet, exerts an influence in the formation of such bars which no ordinary precaution can obviate.

These facts are stated with a view of pointing out some of the unavoidable difficulties to be overcome, and the uncertainties connected with the satisfactory accomplishment of the class of improvements suggested in the reference made.

Having made these general remarks, it is proposed to draw attention briefly to each of the three Rivers alluded to, in the order following, viz:

YAMASKA RIVER.

This river has its source in Missisquoi, passes through and drains a considerable extent of the Counties of Rouville, St. Hyacinthe, and Richelieu on the west, and Shefford, Bagot, and Yamaska, on the east; during high water in the spring it is navigated by barges and other craft for a distance of about 24 miles above its outlet, but towards mid-summer, in ordinary seasons, vessels of very light draught only can pass, and even these with difficulty, the channel in general being narrow, and at many places intricate. The current, and of course the descent, is slight, till opposite the village of St. Aimé, where there is a rapid and a shoal of boulders for nearly a mile in length. At this point, about 15 miles above its western outlet, my examination commenced. The river below occupies a space of from 500 to 700 feet in width, and at some places more. The banks from St. Aimé downwards for fully a mile below Yamaska village, are generally high, but occasionally there are flats and Islands that have the appearance of being more or less covered during high water. Both sides are studded with clean, neat, and occasionally a good class of buildings, presenting the appearance of a continuous village for fully $8\frac{1}{2}$ miles in length on each side. The villages of Yamaska and St. Aimé are laid out on flats of table land, considerably elevated and situated on the north side of the river. To judge from the surrounding country and general appearance of these villages, they are in equally as prosperous a state as most of the inland villages in the Province.

On referring to the sketch, and following the soundings from St. Aimé downwards to Yamaska village, it will be seen that

For $\frac{5}{6}$ of a mile the depth of water averages from $2\frac{1}{2}$ to 4 feet.
" $\frac{2}{5}$ " " " " 2-$2\frac{1}{2}$ " 3 "
" 1 " " " " 3-$3\frac{1}{2}$ " 4 "
" $1\frac{1}{6}$ " " " " 3 " $4\frac{1}{2}$ "
" $\frac{2}{5}$ " " " " $3\frac{1}{2}$ " 5 "
" $\frac{2}{5}$ " " " " $4\frac{1}{2}$ " 5 "
" $\frac{1}{5}$ " " " " 4 " 6 "
" $\frac{9}{10}$ " " " " $4\frac{1}{2}$ " 7 "
" $\frac{7}{10}$ " " " " 5 " 6 "
" $\frac{9}{10}$ " " " " 5 " $7\frac{1}{2}$ "
" $\frac{1}{10}$ " " " " 6 " 8 "

And from Yamaska downwards to the junction of the east and west outlets:

For 1 mile the depth of water varies from 6-7 to 8 feet.
" $\frac{3}{5}$ " " " $2\frac{1}{2}$ " 5 "
" $\frac{1}{5}$ " " " 5 " 7 "
" $\frac{3}{5}$ " " " 7 " 9 "
" $\frac{1}{5}$ " " " $4\frac{1}{2}$ " 10 "
" $\frac{1}{2}$ " " " 10 "

From the junction along the western channel there is throughout a depth of 10 feet water, and from the Junction along the eastern channel the depth of water varies from 3½ to 5 and 8 feet for three quarters of a mile, then to 9 and 10 feet, till about one mile and a half out, where for a short distance from 7½ to 8 feet water only was found.

It must, however, be borne in mind that the water was said upon good authority) to be frequently 15 inches lower than at the time soundings were made, and that at the village of Yamaska the variation between extreme high and low water is fully ten feet; but from 5 to 6 feet of the extreme rise is caused by the ice jamb that annually occurs, the balance being due to an increase in the volume of water from the melting of snow and the general drainage of the country. From the foregoing, it will be evident no vessel fit to navigate Lake St. Peter can ascend higher than within a mile and a half of Yamaska when the water falls 15 inches below the soundings shewn on the sketch.

When in that vicinity I observed quite a number of barges aground at different places; in some cases this arose from the intricacy and narrowness of the channel, in others from shoals directly across the River. When this occurs, the cargoes, chiefly cordwood, are thrown out, and the owners consider themselves lucky if the vessel can then be dragged over or out into sufficient depth to allow her to float.

On considering the subject of improving the navigation of this River from its outlet upwards to the extent examined, the following questions naturally present themselves: What is the draught of water that can reasonably be obtained, what are the means that should be adopted to effect that object?

If improvements of any kind are to be made, there cannot be a doubt but 7 feet, or 6 at least, is the least serviceable depth that can be assumed as suitable for barges engaged in the Lake trade. To obtain either of these below low-water line, the process of dredging at first suggests itself as the simplest if not most expeditious mode. But when the facts are kept in view, that the present channel at many places is narrow, the shoals long, and part if not the greatest bulk of the materials forming the River bed of a difficult nature, to remove them it seems questionable whether the object could be accomplished to greatest advantage by sinking the bottom, or by maintaining the water at a like height as the spring level—that is to say—the level due to melting of snow, or to drainage.

By dredging, the channel would of course be available only to the extent or distance deepened, while raising the water would back it over the rapids at St. Aime, and allow vessels of a like draught to ascend at all seasons as high as during the spring months; the latter would render necessary the construction of a lock and dam, either at the Island opposite Yamaska Village or in the vicinity of an Island about a mile below.

I am, however, of opinion, apart from the question of the channel remaining open, that the nature and quantity of dredging to be done would be found a barrier sufficient to prevent it being carried higher than Yamaska village, or at furthest a short distance above, while, if the improvements are undertaken, there seems to be no reason whatever why it should stop at either of these places, the upper section of the country bordering on the River furnishing the greater part of the trade, which consist principally of sawed lumber, cordwood and such produce as the inhabitants have to spare for market over home consumption.

J. Gill, Esq., M.P.P., on application supplied the following information, vi : That there are from 75 to 100 boats and barges of different size employed during the season, and that from 25,000 to 40,000 cords of wood, considerable quantities of sawed lumber, grain, and a number of horses, cattle, sheep, &c., are shipped annually.

Having been quite unable to procure any other valuable information than the above, as regards trade, I scarcely feel justified in attempting to discuss the subject in a remunerating point of view or otherwise, and will therefore draw attention only to the works that would open up the greatest extent of the River, consequently benefit the greatest number—with that object in view the erection of a dam and lock situated below Yamaska Village, at the place before alluded to, is believed to be the best, cheapest, if not the only place nature and circumstances will admit of adopting to render that portion of the River navigable, at its low stages, for vessels of a moderate draught of water.

The dam, and of course the lock, should be raised sufficiently high to retain the water at say 4½ feet over its present height, which would afford a depth in the channel above, sufficient to obviate the necessity of dredging; while the boldness of the shores would prevent the water spreading over a greater surface than that covered by ordinary high water, which is confined to a few flats, and the low parts of some of the Islands.

The lock might be of a size equal to those on the Chambly Canal, which would be ample for the class of vessels now in use, and the dam consists of crib work arranged somewhat on the principles adopted at St. Ours.

Cost of Locks, excavation of approaches to and from it, the sum of	£12,500
Dam, &c. &c.	10,000
Superintendence, land, damages and contingencies	7,500
	£30,000
Dredging below Dam outwards to junction of two channels	2,000
Taking off points, &c, in west channel	750
	£32,750

If the east channel opening into Lake St. Peter, adapted chiefly to the downward trade, is to be improved, it will cost £2,000, with no certainty of its remaining open.

ST. FRANCIS RIVER.

This river rises in the Township of Wolfe and passes through Sherbrooke, Drummond and Yamaska, draining a large extent of country in the Townships. During high water, vessels of light draught frequently ascend a considerable distance into the interior, and rafts of lumber of various kinds descend. While in that neighbourhood, my attention was drawn to a large vessel, said to have been built at Drummondville, about thirty miles up the river; I was further informed that this was no uncommon occurrence.

J. Gill, Esq., M.P.P., furnished the following information, namely: There are employed on the river from 75 to 100 boats and barges of various sizes, drawing from three to eight feet water when loaded. Four saw mills and six grist mills, in all thirteen run of stones (where situated not mentioned). From 25,000 to 40,000 cords of wood are shipped annually, besides sawed lumber and such quantities of grain, number of cattle, sheep and horses, as the inhabitants have at disposal.

The river near its outlet into Lake St. Peter varies from 500 to 800 feet in width. A short distance upwards a large Island divides it in two parts of nearly equal dimensions, but the deepest, and of course the channel used, although the longest, is on the north side of the Island. Thence it passes between a number of small Islands till nearly opposite the village of St. Francis, where the space and view from one side to the other is uninterrupted. The deep channel is narrow and tortuous throughout. The banks generally are bold and of considerable height. The Village of St. Francis and Indian Village are situated, the former on the south, and the latter on the north side of the river, on a flat of high land at a distance of about two and three quarter miles in a direct line from Lake St. Peter, but by following the course of the river, the distance is fully three and a quarter miles. About a mile and a half above these villages the river increases in width, forming a shoal rapid, beyond which no vessel can pass at low stages of the water. Immediately below this point the examinations were commenced and proceeded with towards the outlet.

On turning to the sketch it will be seen that from the rapids to opposite the village alluded to, the depth of water is as follows, namely,

For $\frac{7}{20}$ of a mile from	6	to	8	feet.
" $\frac{13}{20}$ " "	3	"	$6\frac{1}{2}$	"
" $\frac{1}{2}$ " "	7	"	9	"

Thence onward along the north and deepest channel,

For $1\frac{5}{12}$ of a mile from	4	to	7	feet.
" $\frac{1}{2}$ " "	7	"	9	"
" $\frac{3}{4}$ " "	$8\frac{1}{2}$	"	10	"
" $\frac{1}{3}$ " "	10	"	0	

Thence over the bar at the entrance to 10 feet water in the Lake,

For $\frac{1}{3}$ of a mile from	4	to	$7\frac{1}{2}$	feet.
" $\frac{1}{3}$ " "	4	"	$5\frac{1}{2}$	"
" $\frac{1}{4}$ " "	$2\frac{1}{2}$	"	4	"
" $\frac{1}{6}$ " "	3	"	$6\frac{1}{2}$	"
" $\frac{1}{12}$ " "	8	"	10	"

At the time the soundings were taken the water was said to be fully one foot higher than it frequently is during the Fall months. Assuming this to be correct, one foot must be deducted from the respective depths above stated, as also from those shewn on the sketch, in order to shew the actual state of the river and entrance at extreme low water.

In addition it should also be stated that the bed of the river consists of a hard class of material, such as renders dredging operations tedious, whilst the narrowness of the channel requires a greater quantity to be removed from the sides and the centre in order to afford a water way of say 60 feet in width.

At the entrance into Lake St. Peter the water is shoaler on both sides than the line represented—so much so, that the top of a sand-bank a short distance to the westward is sometimes visible at low water. This bar, although fully a mile in width, between eight feet water inside to a like depth outside, is of a nature that can easily be removed; but judging from its position in respect to both the River and the Lake, there is every reason to apprehend it would again still more quickly accumulate, without some means were adopted for its prevention; what these means should be, apart from the question of what the extent of trade will warrant, might possibly be determined, but when both are received in connection, the matter assumes quite a different shape, and seems to decide the question, that if the entrance is dredged the inhabitants must rely on the same causes for keeping it clear as were combined in the first instance in forming the bar.

To excavate the channel to the depth of 9 feet under low water line, and to the width of 80 feet, (these being considered the least dimensions that should be assumed for a Lake entrance,) would require about 90,000 cubic yards to be re-

moved, at a cost of 1s. 1d. per yard including dredge, steam-boat and other machinery..	£4875
From entrance to Village of St. Francis for a channel of 60 feet wide and 7 feet deep at low water, allowing 15,000 yards for widening, will make in all 60,000 cubic yards at 1s. 4d.........	40000
	£8875
Add for contingencies.........................	1125
Total..................	£10000

It will be observed the above estimate makes no provision for protecting the entrance.

RIVER NICOLET.

This river is fully as great in width as, although much shoaler than, any of the others. It was carefully sounded and examined from the bridge opposite the Village of Nicolet downwards, to 10 feet water in Lake St. Peter, in presence of several gentlemen connected with the Township Council who were kind enough to accompany me, as well as to procure the services of a Pilot well acquainted with the channel. From them I learned that during high water in May and the early part of June, small classed steamers frequently ply on the river, carrying freight to and from the Village. These gentlemen also informed me that the water was then as low as they had ever observed it; a circumstance that can only be accounted for by their attention hitherto not being turned to the subject, it being a well known fact that at the time Lake St. Peter was fully a foot higher than it frequently is at that season of the year.

The export trade, so far as could be learned, seemed to consist chiefly in cordwood and sawed lumber, (quantities not ascertained,) and the import of such articles as are required for local consumption.

On turning to the sketch it will be seen that the average depth of water from the bridge downwards to a point marked A may be represented as follows:

For	$\frac{1}{10}$	of a mile	from........................	2½	to	3	feet depth.
"	$\frac{9}{20}$	"	"	2	"	3	"
"	$\frac{3}{10}$	"	"	1	"	1½	"
"	$\frac{1}{5}$	"	"	5, 6	"	7	"
"	$\frac{3}{20}$	"	"	4	"	5½	"

These shoals at several places consist of boulders imbedded in clay, from point A outwards to 10 feet water in the Lake the bar consists of clay covered with sand, on which the depth of water varies as follows:

For	$\frac{3}{10}$	of a mile	from...................... 1 to	1½	to	2	feet.
"	$\frac{1}{10}$	"	"	2½	"	3	"
"	$\frac{1}{12}$	"	"	3	"	3½	"
"	$\frac{1}{4}$	"	"	3½	"	4½	"
"	$\frac{1}{12}$	"	" .... 5 to	6½	"	8½	"
"	$\frac{1}{40}$	"	"	8½	"	10	"

The gentlemen before alluded to appeared desirous to have the following circumstances brought under the Commissioner's notice, namely—if considered impracticable to deepen the channel all the way up to the Village, they would be satisfied if the entrance and that portion only was deepened up to point A, which it will be observed is situated on a "pool" of from three to four feet water, formed between the outer bar and a shoal inside.

In reference to this proposition it may be said, that however much greater the proportionate expense of removing a like quantity inside, compared with that out side, may be, the uncertainty of an outside channel, if made, continuing serviceable, is at least tenfold greater.

The soundings in every case follow the line of the deepest water: at some places on the bar at the entrance the canoe from which they were made touched bottom, and a little to the westward a sand bank stood from a foot to 18 inches over the surface of the water.

To form a channel from the Lake inwards to point A, of 80 feet in width and 8 feet under low water, (assumed one foot lower than the soundings,) 100,000 cubic yards of the bar must be moved, at 1s. 4d. per cubic yard..........	£5416	13	4
Constructing a wharf, say...............	1000	0	0
	£6416	13	4
Contingencies..............................	583	6	8
	£7000	0	0

Otherwise, to deepen the channel up to the Village,

Outer bar as above..............................	£5416	13	4
Channel from A to bridge of 50 feet width and 6 feet under low water, 55,000 cubic yards at 1s. 6d.	4120	0	0
	£9536	13	4
Add for contingencies.............	1263	6	8
	£10800	0	0

In the foregoing I have endeavoured to supply all the information bearing on the subject of improving these rivers that could be collected during my visit to the respective places, and have drawn attention to some natural causes which contribute in whole or in part to form the bars at the entrances that are not likely to be removed by merely deepening the channel.

Trusting, therefore, that sufficient has been said to enable the Commissioners to decide on the best course circumstances will admit of adopting,

I have the honor to be, Sir,
Your obedient servant,

JOHN PAGE,
Engr. P. Works.

G.

PUBLIC WORKS, TORONTO, 22nd July, 1856.

SIR,—In the last general Report of this Department upon the Public Works of the Province, which was laid before the Legislature during the late session, the project then generally mooted, of rendering the River Ottawa navigable throughout, was referred to, and a survey of that River and of the adjoining country was recommended. To cover the cost of such survey, a sum was placed on the estimates, and was appropriated for by Parliament.

The immediate commencement of this survey is now decided on, and I am directed to acquaint you that His Excellency the Governor General, having full reliance on your zeal, energy, and professional acquirements, has been pleased to sanction an arrangement by which will be entrusted to you the principal charge and direction of it.

A Copy of the Order in Council on the subject is inclosed herewith.

In the Report above referred to, the matter is thus introduced:

" The importance of opening a through line of communication from Montreal, "by the line of the Ottawa, Lake Temiscouaning, and French River, to Lake "Huron, has, of late, attracted a large share of public attention. The Board of "Trade of the City of Montreal, the Corporation of the City of Ottawa, and the Mu-"nicipalities of several of the Counties which would be traversed by this route, "have taken the matter up, and several Petitions connected with it have been "presented to the Executive."

"The expediency of improving the navigation of the Ottawa by making it "continuous, so as to avoid the numerous trans-shipments that necessarily take place "at present, has been, for some years, admitted, and an appropriation of £50,000 "was made towards the commencement of the works, which are of such a value, "and so situated that, on the completion of each, separately, immediate bene-"fit will be derived therefrom. On the completion of the Chats Canal, the delay "and expense of trans-shipment and portage between Lake Chaudière and Chats "Lake will be got rid of, and a continuous navigation opened from Aylmer to the "Chats. In like manner, when the improvements at the City of Ottawa, (of "which a survey and estimate have been made,) are effected, an uninterrupted navi-"gation will be opened from Montreal. Had the Canals at Carillon and Grenville, "known as the "Ordnance Canals," been the property and under the control of the "Province, it is probable that the improvements would have been commenced with "them; and, doubtless, on their becoming Provincial property, their enlargement "and improvement will be provided for."

"All such improvements to the navigation have been undertaken with the "view of their being carried out to such extent as the Ottawa is capable of, at a "reasonable outlay, and as the conveying of supplies of the lumber trade, and the "opening and settlement of the country would appear to demand. The dimensions "of the locks were proposed to be the same as those of the St. Lawrence naviga-"tion, but with a less draft of water, namely six feet six inches on the sills, which, "it was considered would be found ample for the water communication contempla-"ted and could not well be increased, owing to the depth of the river itself in "places, except at a greatly increased expense."

"This communication, however, as the subject is now taken up, is contempla-"ted, for much more extended objects; and principally for the opening of a new "route, which, it is represented, would become that for the conveyance of a large "proportion of the produce of the far west to the seaboard, and would also be the "channel for the transport of the manufactured lumber to the great markets of "Chicago, &c."

"No actual surveys or reliable examinations have as yet been made with a "view to the construction of such a communication, nor has any information of "practical importance been obtained with reference to it; but the subject is of such "importance, as to induce the undersigned to recommend that a general survey and "exploration of the line should be authorised and provided for; and at no time "could such be carried on more effectively and economically by this Department "than at the present. The period of such survey should embrace the winter as well "as the summer, as it would be important to observe the state and character of the "rivers and waters at every season. This survey should not be made with a view "to the creation of a water communication alone, but should be so conducted as "to afford full and ample opportunity of reporting upon the greater facilities or "otherwise which may be found to exist for the adoption of a Railway communi-"cation through that territory, either in whole or in part, instead of the suggested "navigation."

The above extract, taken in connection with the Order in Council, and with the report from this Department upon which that order is based, (of which a copy is transmitted herewith,) embraces so fully the principal points to be attended to in the conducting of the survey, that but little more is required to be added for your guidance.

You will perceive that the first object of the survey is to ascertain the real capabilities of the river,—the obstacles to navigation met with on it, and how they can best be overcome; which, wherever it is practicable, it is considered much the most desirable in every point of view to effect by lateral cuts, rather than by dams in a river such as the Ottawa. The all-important point as to the sources and capacity of the necessary supplies of the summit level will, of course, command your attention, as will also the selection of a suitable terminating Harbour on Lake Huron. The character of the tributaries to the Ottawa, as to what extent they are navigable, it will be well should be examined into, and embraced in your report.

The great length and magnitude of such a water communication as the one under consideration, and the necessarily very large outlay which must be involved, renders it desirable that, during the course of your operations, you should keep in view the importance of determining upon the requisite works, so that, as each might be completed, direct and immediate benefit would be had therefrom, pending the execution of others; and that, thus, the works might progress as the finances of the Province would permit, and the wants of that section of the county might appear to require. Looking to this object it may be well that, at such parts of the river as present very serious obstacles, the removal of which would require a great expenditure, you should have the facilities for the making of a Railway portage ascertained; by which means, as alluded to in the Order in Council, the country would be opened up, and great facilities for the transmission of the lumbering supplies, Agricultural produce, &c., &c., be obtained, at a comparatively moderate outlay. It will, of course, at once occur to you that these observations refer only to the contemplated improvements so far as the settlement of the country is concerned: but, looking upon these as to be embarked in, to form a channel for the produce of the western countries to the seaboard, which many advocate, it is clear that, whether such communication be finally by rail or by water, it should be, in either case, continuous and without breaks

The scale of a water communication to suit such a trade should necessarily be much greater than what would be required for the local wants of settlement, &c.,

and, how far the line indicated is capable of being made so, is one of the most important points to be decided by your survey.

In connection with the information which you will be enabled to give as to the capabilities of the river for improved navigation, or of the adjacent country for the construction of a railway, it will be highly desirable that you embrace, also, in your examination and report, a topographical and geological description of the country traversed; describing particularly the quality of the soil, nature of the timber,—which latter should be referred to in each quarter of a mile,—opportunities for the establishment of water-power, &c.

As the country lying between the Chats and Georgian Bay is little settled, known and explored, compared with that from the Chats to St. Aimè, it is obvious that it should first command your attention, and that, therefore, your parties should be arranged for the exploration and survey through it, in the first instance. At the same time, in consequence of the dilapidated state of some of the works on the Ordnance canals, (now Provincial,) below the city of Ottawa, an examination of and report upon them and a specification and estimate of what will be necessary to put them into an efficient state, are required; particularly, as the great question of the extent to which the river can be made navigable must be determined by an examination of it throughout.

Should you require, during the course of the survey, any documents or further information at the command of this department, they shall be promptly furnished to you.

In conclusion, I am directed to state that, as the responsibility of this important survey is placed on you, the Commissioners entrust to you solely the selection of your own assistants; and they hope that you will further the immediate commencement of it as much as you possibly can.

I have the honor to be, Sir,

Your obedient servant,

(Signed,) T. A. BEGLY,
Secretary.

Walter Shanly, Esquire., C. E.
Toronto.

H.

Public Works,
Toronto, 19th September, 1856.

Sir,—In your preliminary interview with the commissioners of this Department, prior to your being furnished with the instructions for your guidance in the outset of the "Ottawa Survey," you were made acquainted with their views as to the necessity of an exploratory survey being shortly made between the Chats Lake and Georgian Bay, by the valley of the Bonnechere, or by such other inland and direct route as might be found more practicable, in order that a line of Railway communication by such a course might be contrasted, as to respective cost and advantage, with one by the valley of the Ottawa. The survey of the River Ottawa, and of the waters between it and Lake Huron, with the object of ascertaining their capability of being converted into a good continuous water communication, being the primary object referred to in the Report of the Commissioners of Public Works, and the one for which the appropriation was made, it was deemed expedient, in the first place, so to frame your instructions; embracing, however, along with the examination of the water route, all the necessary operations required to enable you to report on the facilities or otherwise of forming a Railway communication in or near the Valley of these waters, such communication to be auxiliary to the navigation of all these portions of the River Ottawa and its tributaries which are, in their natural state, available for the transport of lumbering supplies, &c.

As the Commissioners find, by your Report, that this survey is now in full operation, they are desirous that, while on your general exploration, you should take steps to organize and set at work as soon as possible, a party or parties for the exploration of the inland lines, as above adverted to; such survey to be so conducted as to enable you to report fully upon the character and resources of the country, the quality of the climate and soil, extent and characteristics of the timber tracts, nature and capacity of the rivers and streams intersecting it, embracing also, all such topographical and geological observations as may be of interest and deserving of record.

The Commissioners will be glad to hear from you, from time to time, with reference to the important service with which you are entrusted.

I have the honor to be, Sir,

Your obedient servant,

(Signed,) T. A. BEGLY,
Secretary.

Walter Shanly, Esq., C. E.,
Toronto.

I.

TORONTO, 19th March, 1857.

SIR,—I have the honor to report, for the information of the Commissioners, the progress of the survey of the River Ottawa, the charge of which they committed to me on the 22nd July last.

On receiving my instructions I lost no time in taking measures to collect the most reliable information within my reach relative to the long chain of waters it was proposed to survey, with a view to improvement of navigation, extending from the mouth of the French River, on the Georgian Bay, to Montreal,—an estimated distance of 430 miles.

My attention having been directed to the sum appropriated towards defraying the expenses of the survey, the limited amount of which was in very narrow proportion to the breadth of my instructions, I deemed it proper to regulate my proceedings so as to make the first appropriation apply on such sections of the river as were known to prevent the principal obstructions to a continuous navigation.

The old canoe route of the "voyageurs" of the north west follows the Ottawa for about 180 miles above Bytown, to the mouth of the Matawan River: ascending which stream, nearly due west, to its head waters on Trout Lake, (about 40 miles it there crosses the height of land separating the waters flowing to the Ottawa from those tributary to the Saint Lawrence. The width of the dividing ridge may be taken at three miles, and it is washed on the west side by Lake Nipissingue; crossing which we descend its outlet, the French River, to the Georgian Bay. The distance from the mouth of the Matawan, where we leave the Ottawa, to that of French River, is about 125 miles.

This old canoe route is that which will be adopted for any larger scheme of navigation that the growing wants of the country may require to be perfected by the Valley of the Ottawa.

Pursuing my inquiries, I learned that of that portion of the Ottawa River above referred to, viz; the 186 miles from Bytown to the Matawan, about 85 miles are navigated, in three distinct sections, by steamers of from 5 to 5½ feet draught of water; the highest point to which they ascend being "Les deux Joachims" Rapids, 135 miles above the City of Ottawa (Bytown.)

The three navigable reaches are:

1st. Lac des Chênes: commencing nine miles above Bytown, and extending to the foot of the Chats Rapids............25 mls.
2nd. Lac des Chats: from head of the Chats Rapids to Portage du Fort .23 "
3rd. The Deep River: extending from near the head of Les Allumettes Island to the foot of Les deux Joachims Rapids, about ....37 "

I also ascertained that the Department had already had a survey made for a canal, nine miles in length, to connect the Lower Ottawa, below the City of Ottawa, with Lac des Chênes above, and, further, that one of three miles in length, to surmount the Chats Rapids, and unite the two Lakes, Les Chênes and Les Chats, was actually in course of construction.

The completion of these two works would have the effect of rendering the Upper Ottawa continuously navigable from Bytown to Portage du Fort, 60 miles; but thence to the upper extremity of Les Allumettes Island, a stretch of more than 40 miles, I found the river wholly unavailable for purposes of navigation, interrupted by frequent rapids, and divided by islands into two distinct and tortuous channels.

I fixed upon this intricate section of the river for the commencement of the survey; considering that, however, the question of a *through* navigation to Lake Huron may eventually be solved, the improvement of the Ottawa proper, for purposes of internal commerce must soon demand a complete connection of the disjointed navigation now existing between Bytown and the head of the fine stretch of deep water known as the Deep River, steps for perfecting which as far up as Portage du Fort had, as has been said above, already been commenced.

By the middle of August a party of Surveyors was in the field, and operations commenced in the vicinity of Pembroke; the work of surveying has been continued all winter; is still going forward, and will require at least another year to complete: no equal portion of the proposed chain of navigation above Bytown, presenting so many or so great obstacles to improvement or, consequently, requiring such careful and accurate surveying as this part between Portage du Fort and the Deep River.

From the head of the Deep River, upwards, the Ottawa is of direct and comparatively unembarassed character, the descent of its waters being chiefly concentrated in four short rapids varying in fall from 10 to 40 feet.

It appeared to me, then, that the instrumental examination of this section of our route, from the Joachims to the Matawan Rapids, fifty miles in length, might be judiciously deferred for the present, and I, accordingly, next turned my attention to that very important link where the question of connecting the Ottawa waters with those of Lake Huron has to be tried, viz; between the mouth of the Matawan River and Lake Nipissingue.

The Matawan has an ascending direction nearly due west: its length is forty miles, and its head waters, in Trout Lake, are within three quarters of a mile of those of La Rivière de Vase, a tributary of Lake Nipissingue.

Upon this section I placed two parties of Surveyors, and arranged for a winter campaign by sending up supplies of provisions, &c., sufficient to last them unti the re-opening of navigation, which in that region cannot be counted on much earlier than the 10th of May.

Notwithstanding the severity of the winter, the thermometer frequently indicating minus 39°, I am enabled to report that the work on the Matawan has steadily progressed, and is conducted with a view to obtaining a full, complete and accurate chart of the river and its lakes, together with a topographical survey of the ridge that divides its waters from those of Lake Nipissingue, so as to ascertain how and where a connection between them can be best effected.

The foregoing constitutes all the steps I had contemplated taking towards the carrying out of my instructions until means for further operations could be obtained: but upon the suspension of the works of the Chats Canal I suggested to the Department the employing of the engineering staff, that had been there engaged, to complete the survey of the river from the foot of that canal to the head of the contemplated one, which is to surmount the Chaudiere Rapids from Bytown. That survey, taking in the whole of Lac des Chênes, is going forward: and, with the facilities afforded by the ice, I look to having the principal channels accurately sounded, between the points referred to, before it has ceased to be safe to work upon.

With the above addition to my first plan of operations, the whole extent of the route now under survey is as follows:

1st. From the head of the Chaudière Rapids to foot of the Chats	25 miles.
2nd. From Portage du Fort to the foot of the Deep River	40 "
3rd. From the mouth of the Matawan to that of River de Vase	45 "
Total	110 miles.

I estimate the whole length of the route covered by my instructions at 430 miles, so that there remain 320 miles, towards the surveying of which no steps have as yet been taken. In that distance, however, is embraced a large proportion of still deep water, which will involve much less outlay for surveys, mile for mile, than those sections now in hands.

While upon this subject I may observe, that so far as I am yet able to form an opinion on the project of a ship canal by the Ottawa route to the Western Lakes, no part of the river calls for more careful examination, or is more likely to present more continuous obstacles to a deep navigation than that part commonly termed the Lower Otttawa, extending from Bytown to its confluence with the St. Lawrence; the length of which, calling Montreal the point of junction, is commonly rated at 120 miles; of that section of the route, beyond some examinations made with a view to ascertaining the existing condition of the Ordnance Canals, no surveys have yet been undertaken.

Of the result of the surveys going forward in the three sections detailed above, I am not now prepared to speak, this report being only intended to keep the Commissioners advised of the steps that have been adopted for carrying out their views. Since the setting in of winter the attention of the engineers has been principally directed to sounding the several parts of the rivers on which they are engaged, and, while the ice continues safe, that important branch of the work will be urged forward with all convenient despatch; for, on the facts to be brought to light by it will mainly depend the solution of the question as to the scale of navigation to which the Ottawa and other waters in the chain are adapted by nature or can be improved by art. The Commissioners will perceive, also, that that question, as well as the still more momentous one of cost, will have to be dealt with as a whole, and cannot possibly be so treated while any of the obstructed portions of the route remain unexamined. All the soundings that can be taken by the aid of the ice this season, will be had by the middle of April at furthest, and by the end of that month I trust to be able to report with some degree of confidence on the capacity of the whole of the Rivers and Lakes which are to form the links in the chain of navigation above the City of Ottawa; I can then, also, touch upon the all-important questions of the union of Ottawa waters with those of Huron, and of the source whence the supply of lockage water is to be drawn.

Referring to that portion of my instructions which directs a railway exploration to be carried along the valley of the Ottawa, in order that the facilities afforded for that means of communication may be compared with the navigable advantages of the river, I have to report that a line has been surveyed from Pembroke to Les Rapides des Joachims, a distance of 40 miles: that the configuration of the country is not favorable to railway construction; and that I have deemed it advisable not to incur useless expenditure by continuing the survey further up than the Rapids aforesaid, at the head of the "Deep River" navigation.

I made Pembroke the starting point of the railway survey, considering it needless to commence lower down the river, the Brockville and Ottawa Railway Company having already had their line surveyed up to that point.

For the necessary information relative to the cost of the surveys, past and to come, I beg leave to refer you to my letter of the 21st ultimo, specially treating of that important subject.

Before concluding this report, I beg leave to say, that I have myself explored all that portion of the proposed line of communication lying between the mouth of the French River, in the North-east angle of Lake Huron, and Portage du Fort, at the foot of Calumet series of falls, on the Ottawa: and have made a general examination of all the main obstructions to the navigable connection of that long chain of waters.

As to the result of my observations on that section of the route where the flow of the waters is to the west, not hereinbefore specially described, I will briefly state, that that mouth of the French River by which I entered it, under the guidance of an Indian of Lake Nipissingue, is not obstructed by islands and is capable of being made accessible for large vessels: that the French River itself is singularly facile of adaptation to the purposes of a deep navigation: that Lake Nipissingue, a noble expanse of water, possesses, at least on that side of it (the southerly) with which we have to do, ample depth and fine harbourage: and, finally, that the ridge separating its waters from those of the Ottawa cannot be looked upon as a formidable barrier to their union when it is known that a cutting of three-fourths of a mile in length by twelve feet in depth would cause the upper waters of the Matawan, now tributary to the Ottawa, and more than 200 feet deep, to flow to Lake Huron by way of the French River.

I *voyaged* the whole of the above mentioned portion of the route, some 260 miles, by canoe, and found it to embrace a vast proportion of deep, still water, stamped, to a great extent, with Lake rather than River characteristics; and I reached the end of my journey strongly impressed with the conviction that nature has there marked out a pathway in the desert that the Genius of Commerce will, at no far off day, render subservient to its ends; the navigable connection of the great Lakes with "La Grande Rivière du Nord," I look upon as inevitable; *scale* of navigation to which the route, as a whole, is capable of being adapted, remains to be determined by survey.

In my next report I will be prepared to take up the subject of lockage, shewing the amount to be encountered on this route as compared with that of the Lakes and of the St. Lawrence; a comparative exhibit of distances will then also be shewn

I cannot close this report without bearing testimony to the singular accuracy of the surveys made by Sir William Logan, Provincial Geologist, and his assistant, Mr. Murray, on the Matawan, Lake Nipissingue, and the French River; I use the term singular, in view of the limited means at their disposal.

The levels of the Matawan River, taken, I believe, by the former gentleman, have proved strictly correct, and the surveys of Lake Nipissingue and the French River, wholly the work of Mr. Murray, I understand, are highly reliable, and will be a means of effecting much saving of time and expense in carrying out the *engineering* examinations that the Commissioners have entrusted to me.

The whole is respectfully submitted and I remain, Sir,

Your obedient servant,

W. SHANLY.

TORONTO:
PRINTED BY JOHN LOVELL, YONGE STREET.

F. Braun

GENERAL REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS,

FOR THE

YEAR ENDING 31ST DECEMBER, 1857:

FURNISHED

IN COMPLIANCE WITH THE PROVISIONS OF THE ACT, 9 VICT. CAP. 7.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

TORONTO
JOHN LOVELL, PRINTER, CORNER OF YONGE AND MELINDA STREETS.
1858.

GENERAL REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS,

FOR THE YEAR 1857.

To His Excellency the Right Honorable Sir Edmund Walker Head,

GOVERNOR GENERAL OF BRITISH NORTH AMERICA, &c. &c. &c.

MAY IT PLEASE YOUR EXCELLENCY:

The undersigned Commissioners of Public Works have the honor to submit, as required by law, a General Report upon the several Works and Buildings under their charge, to which the following statements are appended:

No. 1. A statement of the works yielding revenue, showing the cost of their construction to the 1st January, 1858, the expenditure upon them during the past year, and the outlay on their repairs, maintenance and management during that period.

No. 2. A statement of the works from which no revenues are derived, their cost up to the 1st January, 1857, and the sums subsequently laid out on them, up to the 1st January, 1858.

No. 3. Statement of the expenditure during the year 1857, on the erection, repairs and maintenance of Light Houses, Buoys, &c.

No. 4. Statement giving the amount of awards made for damages or for the acquisition of land, and the amounts paid thereon during the year 1857, showing also the sums paid to Arbitrators, &c., for services and expenses.

No. 5. A general Exhibit of the total amounts expended by the Department of Public Works, as detailed in the preceding statements.

Immediately after the close of last Session, the Executive intimated to the Commissioners that in consideration of the prospect of a temporary but serious falling off in the Revenue of the year, it was absolutely necessary that the outlay by this Department should be restricted, as far as possible, to the mere repairs and maintenance of the works; that the expenditure under existing contracts should be kept down as much as the conditions of these contracts would admit of, and that no new work of any magnitude should be embarked in. But few, therefore, have been undertaken, and the expenditure has consequently been small, compared with that of previous years. Considerable reductions have also been effected in the establishments.

PROVINCIAL CANALS.

THE WELLAND.

During the past season steady progress has been made in the work of enlargement of the upper or Allanburg level, being that which requires widening and deepening to admit of Lake Erie being adopted as the summit level of the Canal; and it is also the portion which will be common to the present Canal and the proposed Niagara Branch.

The partial enlargement of the Harbour at Port Colborne was effected last spring, and much increased accommodation thereby afforded to the Trade.

The Canal was ready on the 15th of April; but owing to the great quantity of ice in Lake Erie, the navigation did not commence generally until the 1st of May. It closed on the 15th December.

The number of vessels passed is 3604, being 281 less than the previous year.

The interruptions to the trade of this Canal during the season, caused by damages done by vessels to Lock Gates, were more than ordinary; they amounted in the aggregate to 32 days, (being about 13 per cent. of the whole period of navigation), and rendered considerable expense unavoidable in the construction of new gates, in order to have a safe reserve on hand.

The strengthening and protecting of the embankments has also been materially forwarded, so as to maintain the water with safety to the highest level, required in consequence of the great depth to which vessels passing through this Canal are now loaded. Much of this class of work remains yet to be effected.

The repairs of the damages caused to the Piers at Ports Colborne and Maitland by the great storm in December 1856, were carried out in a substantial manner, and have satisfactorily withstood the severe gales of last autumn. An additional Breakwater is much required at Port Maitland; and the Piers at Port Dalhousie must be thoroughly repaired during the ensuing season; this expenditure will come under the head of maintenance, but the sum of £14,750 will have to be appropriated for the continuance of the deepening and enlargement, and other works of absolute necessity.

The annual rent of water-power and property leased on this Canal is £2255 5s. 4d.; the amount collected in 1857 is £1580 18s. 11d., but of rents and arrears there is due up to December last, £4896 17s. 6d.. All rents due up to December 1856, have been put into the hands of the Solicitor for collection.

Table of the Revenue of the Canal for the last three years.

	1855.			1856.			1857.		
Collected at—	£	s.	d.	£	s.	d.	£	s.	d.
Port Colborne........	35645	17	8	43956	19	0	40329	19	7
" Robinson........	1386	18	2	1116	17	6	1128	10	8
" Maitland........	410	4	2	264	19	3	866	8	1
" Dunnville.......	1514	3	2	1535	1	4	884	3	1
" St. Catherines....	503	13	2	604	19	4	599	3	4
" Dalhousie........	14968	9	8	17913	4	3	14301	2	2
	£54429	6	0	£65392	0	8	£58109	6	11
Amount of Water Rents...	2212	2	10	2270	5	4	2255	5	4
" Land Sales....	72	16	2	159	0	0	134	15	0
" Fines........	391	7	6	440	1	3	148	15	0
	£57105	12	6	£68261	7	3	£60648	2	3

The falling off in the Revenue from the amount this year is attributed to the late commercial crisis, and the difficulty of obtaining means for the purchasing and forwarding of produce to market.

With regard to the necessity for largely adding to the capabilities of this Canal, the undersigned respectfully refer to the last Annual Report of this Department, and will here merely repeat the expression of their opinion that sound policy strongly recommends the project, as certain in its effects to secure to Canadian Canals and lines of transport an amount of the trade of "the West" to be limited only by their capabilities.

THE GALOPS, IROQUOIS, RAPIDE PLAT AND FARRANS POINT CANALS

Were opened on the 1st of May, and continued in good working order throughout the season; they were closed by the severity of the weather on the 12th of December, giving seven months and twelve days of uninterrupted navigation. The works generally are in a good state, but the ordinary wear and tear of such works render annual repairs necessary, the principal of which, as stated in the last report, consists in making good and lining the face of the banks; the latter being rather expensive, the outlay thereon was confined, during the past year, to those points which most needed it.

All the new gates which had been prepared have been brought into use, and it will, therefore, be necessary to have a spare set at once built to meet accidents.

CORNWALL CANAL

Was uninterruptedly in use from the 28th of April until the 19th of December. The works, with few exceptions, are in good order, and can be maintained so, for the present year, at a moderate outlay on ordinary small repairs. New gates have been substituted for all the old ones, except at Locks Nos. 16 and 19, at which new gates will be placed on the opening of spring; after doing so, there will still be three pairs of new gates on hand, which, with such of the old ones as can be repaired, will be sufficient to meet any emergency.

The repairs of the Guard Lock, wharves, and protecting the face of the banks, referred to in the last report, and postponed the past year on account of the state of the finances, can no longer be put off; the cost will be included in the estimates.

In consequence of the frequent applications for water power on this Canal, notwithstanding the great number already leased, the Engineer of the Department was directed to make a careful examination to ascertain whether those applications would be agreed to, with due regard to the wants of the navigation. In a very elaborate report that officer shows conclusively that in those cases where the applications were for water, not to be returned into the Canal, it would be extremely injudicious to grant them, but that at some of the locks water power might be disposed of without inconvenience. Arrangements were therefore made to dispose of part of the power at Lock 20, and head gates for its supply are now in progress of construction. His report further shows that to have a full supply at all times, an enlargement of the weir and supply race at the Guard Lock is indispensable.

THE BEAUHARFOIS CANAL

Was opened on the 2nd of May, and closed by ice on the 26th of November, but on the 30th of the same month vessels again passed through and continued to do so until the 4th of December.

The only casualty that occurred during the season was on the 15th of October, and was occasioned by a steamer coming into collision with the lower gates of Lock No. 11—it took about thirty-six hours to replace the gates. The works of the Canal generally are in good condition. New gates have been substituted for old ones where required, and the spare gates on hand, with two pairs more, which it is proposed to construct during the summer, will be sufficient to meet any accident. Much has been done during the past year in removing shoals and deposits in the Canal, and it is expected that about two months working of the dredge will complete the removal of all such obstructions, when the dredge vessel will then be available for work elsewhere.

The superstructure of the wharf or breakwater at Grosse Point, at the head of the Canal, is rather dilapidated in places, and must be renewed, as this wharf is of great convenience, in time of fog or heavy squalls, to vessels making for or leaving the Canal.

The dam at the head of the Canal will also require repair, which, together with the erection of a store house for Canal property, will constitute the chief work required this season.

THE LACHINE CANAL

Was opened to the trade on the 4th of May, and continued in good navigable order until the 27th of November, when it was closed by ice; but, as in the case of the Beauharnois Canal, it was again open on the 30th of that month, and admitted of vessels being passed until the 6th of December.

In the early part of April the Canal was emptied for the purpose of proceeding with several indispensable repairs, such as could not be made while the water was in. The chief of these works were the taking down and rebuilding the upper recess walls, and part of the piers below the upper gates of Lock No. 4, and one of the upper recesses and part of the wing on the South side of Lock No. 3.

The extreme height of the St. Lawrence during the summer prevented the completion of the work connected with the extension of the South Pier at Lachine. The cribs are sunk, but about 125 feet of the superstructure, and the ice breaker at the outer end remain unfinished.

The repairs of the inner portion of the piers were similarly retarded.

The re-building of the upper portion of the guide piers in the basin, and the construction of intermediate piers for the purpose of supporting a retaining boom, will be completed by April next, but suitable timber for the boom cannot be obtained before June or July.

Additional wharf accommodation being called for, about 350 feet in length were built on the south side of the main basin, below Wellington Street Bridge, in continuation of the portion constructed the previous year, and the timber work of about the same length of the wharf on the north side of the basin was renewed.

A sufficient stock of good upper and lower lock gates is on hand.

The principal works of repairs required this year are: the renewing the timber work of about 250 feet of the wharf on the north side of the main basin; erecting weighing scales, and the renewal of mooring rings and posts around the wharves. Repairs to Wellington Street bridge and replanking the other Bridges. Taking down, and rebuilding in Cement, the portion over water surface of the lower recess walls and part of the wing walls of Lock No. 4, and part of the South wall of Lock No. 2. To effect these, it will be necessary to empty the Canal in the early part of April next, so that the work can be completed before the usual period of opening the navigation.

Several of the works recommended in the former Reports as being desirable for the proper use of the Canal—but for which no appropriation was made—have now become indispensable · of these are:—The constouction of regulating Weirs at Locks Nos. 3 and 4. The old locks hitherto used as such, and on which the continuance of the navigation at present depends, are now so insecure as to make it necessary to prop up the walls with timber. No dependence can be placed on their standing for any length of time, and their failure would not only cause the suspension of the navigation, but would be followed by great damages to Mills and other property situated on the line, and in the vicinity of the Canal. The building of a house for the storing of Canal property, and of oil and various articles connected with the light house service, &c. The erection of Lock and Bridge Tender's Houses. On all the other Canals, houses are built for the men permanently employed, and they are still more necessary on this Canal, owing to the expense and difficulty of procuring houses, and to the circumstance of these men having to be in attendance night and day

The great volume of water necessarily passing close to the head of Lock No. 4 creates a current around the head of the pier there, such as seriously to detain and obstruct the passage of vessels; to obviate this, a pier of about 160 feet in length, of detached cribs, is much required.

The wharfage accommodation in the neighborhood of Montreal, notwithstanding the additions made to it lately, continues to be quite insufficient for the wants of the Trade; this insufficiency has been repeatedly referred to in the reports from this Department for several years back, and is felt especially in relation to the articles of sawed lumber, cordwood, &c., &c.

The transhipment of heavy freight is also severely affected by it, as the forwarders are thereby prevented from engaging in such trade as extensively as they otherwise could do; the immediate effect of which is, by so diminishing the amount of up freight, the rates of down freight are proportionally increased, and from the want of suitable accommodations, and no provision being made for its transhipment such up trade is carried over other routes.

The undersigned are glad to be enabled to state that they have reason to hope that negotiations now pending with the Montreal Gas Company will result in the laying of the pipes and other work, so that the long desired advantage to be had from the efficient lighting of the wharves and harbors of this Canal will be obtained early after the opening of the season.

THE CHAMBLY CANAL

Was opened on the 7th of May, and with a few slight repairs during the summer, was maintained until the 4th December in as good a working condition as could reasonably be expected from the dilapidated character of most of the works.

The extensive repairs stated in the last Report to be indispensable, have been very satisfactorily carried out under the efficient management of the Superintendent, Mr. Chartier, notwithstanding the very short time they had to be made in, the inclemency of the weather, and the difficulty of obtaining the requisite materials.

The principal works which must be undertaken this spring are the repairs of the wharf at St. John's and the re-building of the breast-wall, and restoring the mitre cill of Lock No. 2. In addition to these, the construction of a set of new gates and repairing the old ones will be sufficient for the present year, if no casualty occurs.

RIVER RICHELIEU.

The navigation of this River, through the St. Ours Lock, was opened on the 17th of April and closed on the 5th of December, 1857, during which period the navigation was uninterrupted.

The several repairs stated to have been necessary at the date of the last Report, have been effected, with the exception of those to the apron of the Dam, which the unusual continuance of high water has hitherto prevented; the necessary stone and other materials for those repairs are delivered on the spot. The set of new gates reported to have been required have also been provided.

Upon examining the dam it has been discovered that the reaction of the water, after passing over it, has formed large holes in the bed of the river, especially near the abutment on the east, or island side. To protect this portion of the work, about 100 toise of stone will be required to line the bottom of the river as soon as the water subsides sufficiently next summer.

Some land slides have taken place immediately below the abutment, which will render necessary the extension of the wing wall in the course of another year.

OTTAWA WORKS.

Navigation.

The works classed under this head since the Ordnance Canals have been transferred to the Province are—the lock and dam at St. Anne—the Carillon Grenville and Chats Canals.

The navigation through St. Anne's Lock was opened on the 25th of April, and continued so until the 4th of December; 1857, with but two short interruptions,—one of about three hours, for the purpose of repairing a gate chain, and the other of about four hours, on the 8th of October, while new gates were being substituted for the old lower ones.

The improvement of the channel, by the removal of the Rocky Shoals above the Lock, progressed steadily until the 1st of December last, when it was considered expedient to discontinue the operations; but they will be recommenced early in March next, when two months more work will, it is calculated; remove the points of the shoal, which still partially obstruct the navigation in a low stage of the water.

The upper portion of the guide piers above the lock have been renewed, raised higher, and well packed with stone.

The improvements carried out with the view of facilitating vessels entering or leaving this Lock, down stream, are found to be of considerable benefit; still, to effect the object more perfectly, it will be necessary to form a connexion from the piers to the lock, by means of open crib work, so as to afford a foot-way whereby to tow or warp vessels without interfering with the discharge of the water from the mill.

A house for the collector and lockmen is also much required.

CARILLON AND GRENVILLE CANALS.

As intimated in the last Report on the subject of these portions of the Ottawa navigation, the expenditure during the past season has been confined wholly to some ordinary works of repair, and to the removal of deposit, bars of rock, and other obstructions which impeded the passage of vessels, any serious outlay being manifestly imprudent, until a final decision can be come to, as to the scale upon which the continuous navigation of the Ottawa should be effected.

CHATS CANALS.

Upon the principle stated in the concluding part of the preceeding paragraph, and in conformity with the views submitted in the Report of the Department last year, no further progress has been since made with the works of this Canal. A final settlement has not yet been effected satisfactorily with the contractor, which indeed is by no means easy to arrive at, owing to the extraordinary difficulties attending these works.

OTTAWA WORKS,

Connected with the passing of Lumber.

The various slides, dams, booms, &c., comprised under this head, and which have, from time to time, been constructed along the course of this river and its tributaries, to render safe, and to facilitate the passage of lumber, have undergone a general repair during the past season, and are now in a thorough state of efficiency.

Several of the new works recommenced, and for which partial appropriations were made last Session, have been put under contract, and the progress made with them is generally very satisfactory.

The works on the Petewawa proceed rapidly; those at Carillon have been somewhat retarded by the high water, and progress with those on the Little River, at the back of the island of Montreal, has been altogether stopped by the same cause.

Arrangements have been made to secure an efficient and reliable boom at the mouth of the Black River.

The line of road from the Portage du Fort at the head of the Calumet has been laid out for execution, and tenders have been received for its construction, the cost of which will agree as nearly as possible to the estimate for it submitted last Session, but for which an appropriation of only one-half was then made on account.

The several works connected with the Hydraulic power at the Chaudière have been substantially constructed, and the lessees are proceeding most spiritedly with the erection of mills of very extensive and costly description.

The works at the mouth of the Gatineau River are in an effective state of repair, and the safety of the boom, for which apprehensions have been entertained at times, when the wind blew obstructive to the ponding of logs, will be placed beyond all doubt, by the completion of two isolated piers now being constructed for its additional security. See Appendix, letter E.

RIDEAU CANAL.

The expenditure upon this work has been kept within as narrow bounds as possible during the past year. The principal outlay has been upon the repairs of the extensive breach which took place in the early part of last season.

Some new lock gates have been provided, the works necessary to the maintenance of the navigation have been effected, and the buildings connected with the canal have underdone a general repair, of which they were much in need.

Applications for additional bridges over the line of canal at sundry places, including one in the City of Ottawa, have been received. They set forth that from the increasing settlement and population, erection of mills, &c., in the vicinity of the canal, additional communications across it are much required. After due examination, and being satisfied that in most of the cases the applications deserve favorable consideration, the undersigned reported accordingly to the Executive and await the necessary authority for proceeding with the work.

RIVER LIGHTS AND BEACONS.

All the river and lake light houses under the control of this Department have been maintained in an effective state during the past year, with ordinary repairs, except at Lancaster, where it was necessary to erect a new light house and keeper's dwelling, on the pier formerly sunk for that purpose.

In consequence of the filling up of the gut or channel through the inner end of Long Point, Lake Erie, the light ship, formerly moored there, has been removed, and transferred to Lake St. Francis, to take the place of the light vessel on it, the decayed state of which rendered it no longer serviceable.

The principal matters to be attended to this year beyond the usual repairs, are building a protection wall around the light house on Cherry Island, Lake St. Francis.

The construction of a pier for the protection of the light house building at Gull Island, Lake Ontario.

Building a rough wall around the light house on Mohawk Island, Lake Erie, and rebuilding the lower part of the light house at Port Maitland.

It is necessary to erect or provide buildings for the accommodation of the keepers of the following lights, viz.:—At Grosse Point and McKies' Point, Lake St. Francis, Coles' Shoal in the river above Brockville, Jack-straw Shoal and Gananoque Narrows, below Gananoque, and Port Maitland, Lake Erie.

The light vessels on Lake St. Louis, which were stated in the last Report to be in a very decayed condition, have been patched up so as to serve for the present year, beyond which it is not possible to continue them with safety. An appropriation sufficient to cover the cost of providing new iron vessels to take their place, is therefore indispensable, so that the old ones may be removed on the close of this year's navigation, and the new ones be ready to be substituted for them in the Spring of 1859.

The erection of a light house on Snake Island, Lake Ontario, at the entrance of the Bay of Kingston, is progressing very satisfactorily, and is now so far advanced as to justify the belief, that it will be completed and ready for lighting by the first of June next.

Tenders for the construction of the several light houses of an inferior class in the Bay of Quinté, partially provided for last Session, have been received, and it is expected that these houses will be ready for lighting towards the close of this year.

As stated in the last Report, the difficulties that had necessarily to be contended against in establishing a secure foundation for the light house near the extremity of Point Pelée Reef, were many and serious, owing to the very exposed position, the nature of the bottom, and the strength and irregularity of the currents which set round it.

These difficulties have now been most satisfactorily surmounted, through the skill and energy of Mr. Scott, the Engineer entrusted with the management of the work. His detailed Report upon it is hereto appended. Appendix letter A.

Mr. Scott has prepared and submitted a plan for the superstructure of this Caisson, embracing, besides the light house tower, accommodation for the keepers and extensive storage for the light eouse supplies, provisions, stores, fuel, &c., which have to be laid in in quantities, safe access to this light house being not possible for many weeks together. So soon as the Caisson was fully secured in its berth, an efficient temporary light was established, and continued to be exhibited until the close of navigation.

During the course of the autumn the crew of a wrecked barge was saved by making for the lee of the Caisson; upon which they were taken by the men in charge of the light, and were conveyed to shore after some days, when the storm had ceased.

The plans submitted by Mr. Scott for the superstructure are well considered and applicable, but the undersigned do not deem it prudent to erect this permanent stone structure until after the subsidence of the foundation that may take place for a year or two more.

RIVER THAMES.

The piers of the old bridge above Chatham, and the jams of drift wood, as well as the sunken snags, &c., near the mouth of the river which obstructed the navigation, have been removed.

LIGHT HOUSES, &c.

Lake Huron.

The tower and dwelling houses at each of the following places are completed, viz.:—

Nottawasaga Island.—Light to be a revolving light.		
Christian Island,	"	fixed.
Griffith's Island,	"	fixed.
Isle of Coves,	"	flashing.
Chantry Island,	"	fixed.

The lights exhibited at those stations are yet but temporary ones. The lanterns &c., not having been received in time to fix them in their berths before winter, they have been delivered at their respective places, and will be set up as soon as the season admits of it.

The tower at Point Clarke is nearly to its full height, and the walls of the dwelling house are two feet over the basement course.

The light upon Nottawasaga Island is the main light for vessels making for Collingwood Harbour, one of the Termini of the Northern Railway, as the entrance to the Harbour is very intricate, this light will be a revolving one to distinguish it from the town lights.

The light on Christian Island bears from the Nottawasaga light north by east half east; distance 20 miles. It stands on the south-east part of the Island, and on the west side of the southern entrance to the Harbour, which is one of the best on the Lakes. This Harbour is well sheltered, has an entrance from the south with not less than 16 feet of water, and one from the north with considerable depth; in the Harbour itself the water runs from 5 to 12 fathoms. This light serves also for a leading light for vessels proceeding to Penetanguishene, Sturgeon Bay, Cold Water, &c.

By means of the light on Griffith's Island, situated west of Owen Sound, the entrance thereto can be made with safety. It will also be of material assistance to vessels making for Colpoy's Bay, in which, behind "White Cloud Island," there is good shelter, and holding ground in from 2 to 10 fathoms water.

The light on the Isle of Coves is a very important one, it is situated in a dangerous strait, and points out the entrance into Georgian Bay from Lake Huron. The steamers and other vessels from Chicago and Collingwood pass quite close to it. It is to be a first class flashing light, and will thus be readily distinguished from all the other lights on its side of the Lake. To the north of this light, at a distance of about three miles, there is a sunken rock of about half an acre in area, with but four feet of water over it. Three vessels have struck on it lately, two of which went to pieces. The third was backed off and saved, there being but little wind at the time. A beacon or bell buoy on it would tend materially to the safe passing through the channel.

The light on Chantry Island, off the mouth of the Saugeen River, and opposite to the Town of Southampton, (which promises shortly to be a place of considerable trade) is of great importance, not only to the locality, but as it enables vessels in stress of weather to run in, under the lee of the Island, which, in connection with the piers or breakwater constructed on the reef to the north-east, affords considerable shelter.

The benefit to be had from this asylum, would be furthered by the placing of a bell-buoy on the extreme end of the reef, which runs south-west 66 chains from the most southerly point of the Island. A large tow-boat was lost last fall on this reef, in day light, which would not have occurred had the end of the reef been defined. Two steamers have the past season been on the route between Detroit and this place, touching at the intermediate Canadian posts on Lake Huron.

The light on Point Clark will be of great service in warning off the vessels from a dangerous reef running westerly for a considerable distance into the Lake. This reef lies in the track of vessels coasting on the east side of Lake Huron. The light is to revolve to distinguish it from that on Chantry Island to the north and from Goderich light to the south of it.

On the opening of spring it is proposed to commence the buildings for the other lights recommended in the last Report, namely; one on the "Ducks," which lie in the direct course of vessels from Lake Michigan to Georgian Bay, one on the Missisaga Strait, between the main Lake Huron and the portion of it known as the Montreal channel, one on Isle of St. Joseph, one on Clapperton Island, and one on Badgley Island.

These main lights it is considered will be sufficient for the Canadian shores of Lake Huron for many years to come; others of an inferior class may from time to time be called for on other points of the coast as the country becomes settled.

But a third or fourth rate light at Tobermoray would be of considerable use. At this place, which is situated at the extreme north end of the Indian Peninsula, there is a small harbour frequently used as an asylum in bad weather by the steamers and other vessels on the Georgian Bay route. The entrance to it is difficult for a stranger to discover, owing to the sameness of the shore. When in, vessels lie in a basin about half a mile long by three hundred feet wide, the sides nearly perpendicular with from 20 to 25 feet of water alongside. A similar light on a small Island called "the Scotch Bonnet;" among the fishing Islands, would also be of great service; there is at this place an excellent harbour of refuge, the entrance to which is above and close to the Scotch Bonnet; steering N.E. from 2 to 4 fathoms can be carried in, until the vessel is rounded to in from 12 to 15 feet of water under an Island called " Main Station Island," perfectly land-locked and secure from every blow.

The piers constructed at Kincardine or Penetangore have well withstood the action of the Lake. Arrangements have been made for the expenditure of the small appropriation for their extension, but as they are contingent upon the Municipality, performing certain necessary inner dredging at their own expense, and for which they have not yet made any preparation, nothing is yet done upon the piers.

Of the small appropriation made last session for piers and harbour works generally in Lake Huron and Georgian Bay, £1000 was allocated as an aid towards the improving of Port Elgin; of this sum £250 is devoted to connecting the detached pier (built by local parties) with the shore, and the balance will be expended in such manner as may be ascertained to be productive of most benefit.

The contract is being concluded for the construction of a landing Pier at the mouth of the Saugeen River, the cost of which is covered by the small appropriation above referred to.

Towards the extension of the Pier at Meaford a further sum of £1,000, taken from the same appropriation, is applied. This work, the execution of which was intrusted to the Municipality, has been very satisfactorily performed.

Prior to expending that portion of the appropriation intended for the improvement of Owen Sound Harbour, a survey of the harbour was indispensable. This was deferred until the soundings could be taken on the ice. The survey has been lately made by the officer hitherto superintending the works on the coast of Lake Huron.

The strong representations made by parties from the western end of the Province as to the necessity for the construction of Piers or landing wharves towards the west end of Lake Erie, one at Mersea, and another at Gosfield, for the accommodation of the trade of that section of the Province, induced the Government to insert the sum of £5,000 for the purpose on the Estimates laid before the Legislature last session.

So soon as the other duties upon which the Engineer of the Department was engaged admitted of it, that officer was sent to examine and report upon the capabilities or otherwise of the localities recommended as the sites for these piers. From this Report, appendix letter B, it will be seen that to construct such work at either place would be impracticable, except at a very heavy expense, and that nature presents no advantages whatever to lead to their selection; on the contrary, they are fully exposed to the prevailing winds, and the length of pier, which it would be necessary to build to reach a suitable depth of water, would be very great. Under these circumstances, no outlay on works in these localities has taken place.

THE RONDEAU.

At this place, where considerable public expenditure was incurred many years since, the works generally are now in a ruinous state. According to the policy which then prevailed, the harbour unfortunately was given over to a private Company, who undertook to maintain it, but, as usual in such cases, they did not adhere to the conditions of the contract; when sought for, in order to compel them to fulfil their engagements, it was found that the Company then consisted chiefly of parties not residing in the Province, and that no benefit could be had in pursuing them.

The Government having decided on not incurring any cost in their maintenance, the present state of ruin is the consequence.

The course of the Government with regard to this work was determined by the very small amount of revenue from the harbour; at the period spoken of there was but very little settlement in the vicinity of it, and its chief importance was as a general Asylum Harbour for vessels caught in bad weather at that part of the Lake, for which purpose it is admirably adapted.

The Engineer of the Department was instructed to make a report on the state of the harbour about two years ago; and Mr. Scott, the Engineer of the Point Pelée Light House, was called on lately to report on its present condition. His Report is hereto added—Appendix letter C. From it will be seen that the combined effects of the unceasing action of the Lake on the most exposed part of the works, and a strong under current, in addition to the decay of the timbers, age and neglect, have reduced almost the entire to utter ruin; to remedy which the outlay of a large sum would be necessary. The erection of a light house there is much urged by parties from that section of the country, but the undersigned are of opinion that in the present uncertain state of the entrance, it would not be wise to induce vessels to seek shelter there, which the exhibition of a light might have the effect of doing.

PORT STANLEY HARBOUR.

No expenditure has been incurred upon this work since the date of the last Report; and it continues in much the same condition. For the reasons therein stated, the large amount required to put it in an efficient state, and the certainty of much dredging and expenditure being annually required to maintain it so, the decision had been come to by the Government, to transfer it either to the Municipalities of the adjoining Counties, to the Corporation of London, or to the London and Port Stanley Railway Company; these bodies being chiefly interested in the upholding of it, communications have been opened with them upon the subject, but no conclusion has yet been come to.

Two wrecked vessels lie within the piers, the removal of which, and the securing the connexion of the west pier with the land, must be done immediately to guard against the effects of the freshets which come down in the opening of spring.

The work will be done so soon as the necessary authority is issued.

THE NARROWS BRIDGE, &c.

The works enumerated in the last Report have been satisfactorily completed, the new Swing Bridge with its piers have been substantially constructed, and handed over to the Municipalities of the adjoining Counties, who will hereafter maintain it. The direct channel leading to this bridge has been dredged out, and it greatly facilitates the navigation. In effecting it, there was a considerable amount of work to be done, more than had been anticipated.

Upon the channel to the Bridge being finished, parties interested in the Trade of that section of the country, expressed strong anxiety to have the Dredge vessel employed in deepening the water in front of the Town of Orillia; but, as there was no fund available for this work, however desirable, the machinery of the Dredge has been removed to other places where it is required and provided for. The scows still remaining on Lake Simcoe, but little expense would be incurred in refitting the Machinery and having the dredging performed there, when the necessary means shall be forthcoming.

RIVER TRENT WORKS.

The works originally comprehended under this head, were immediately connected and embraced in the same acts with those of the "Inland waters of the Newcastle District:" among the latter, the works which have been carried on for some years past more properly should be classed. They consist chiefly of the improvements of the navigation of the River Scugog, the repairs of the Canal, and rebuilding the Lock at Bobcaygean, and the general repairs of the dam at that place, upon the efficiency of which the navigation from it to Lindsay depends; also the repairs of the dam and bridge at Buckhorn, this latter dam being essential to the navigation of the Lake and River from Buckhorn to Bobcaygean. These isolated works have, from time to time, been undertaken in order to create facile means of intercommunication between many inland Townships, as well as to afford them direct communication with Lake Ontario, thereby rendering assistance to the settlement and to the developing the resources of a large tract of productive country.

The other works constructed several years ago, under local Commissioners, comprised, more properly speaking, "The River Trent Works" rather than those latterly classed under that head. They consisted of locks and dams at sundry places on the line of waters between Peterboro' and the Bay of Quinté, and they formed detached portions of the large project then embarked in, that of effecting a continuous inland communication between Lake Ontario and Lake Huron. The character of the Rivers and Lakes, through which the navigation was intended to be carried, was considered such as to limit its capacity to a depth of 3 feet 9 inches on the cills of the locks. This fact, together with the necessarily very circuitous route, the great amount of lockage, and the very large expenditure involved in the project, led to the abandonment of it.

The principal works in progress are the improvements of the Scugog River, excavating new channels to avoid the abrupt turns, obtaining greater depth in sundry places, the erection of a lock at Lindsay and at Bobcaygean, together with the necessary dams, weirs, &c., &c.

The benefits which will accrue from these works are already being felt, notwithstanding their unfinished state; Steamboats have been placed on the route, Railroads are being built in connexion with it, regular and speedy communications established, and a considerable trade opened.

The lock at Bobcaygean is ready for the spring navigation; many of the worst curves of the River Scugog have been improved and the dams and bridges have been repaired and secured. There remain a few bad curves in the River to be amended, and the shoal, rocky reach below Lindsay, continues to obstruct the navigation. Materials are being got out and other preparations made for the construction of a stone lock at Lindsay, in the place of the old decayed wooden lock at that town. The completion of this lock, and of a conveniently placed bridge, together with the removal of the obstacles to the River above mentioned, and a small expenditure upon the improvements of Pigeon Creek, will effectually, for the present, open up that important section of the Province.

The lock at Bobcaygean is completed in a most substantial and creditable manner, the gates are well framed of the best materials, and are perfectly water-tight, as are also the hollow quoins and mitre cills; the water was let into the Canal on the 18th of last month.

The timber for the remaining portion of the Bridge at Buckhorn is delivered, the framing is progressing, and the bridge will be completed in a few days.

A portion of the boom which had been constructed and placed for the guidance of lumber to the slide at this Bridge, was carried away, owing to the carelessness of the raftsmen, who sent down about 7,000 saw logs against it without having taken up the stop logs to let them pass the Slide. For the safety of the bridge this boom will have to be replaced before the square timber and saw logs are sent down in the spring, and as a further security two small cribs or piers should be sunk for the purpose of supporting the boom. These piers will not do away with the necessity of enforcing some stringent regulations to be complied with by the parties whose timber or saw logs are sent through this slide. The extension of it about 200 feet would materially assist the free passing of timber there.

A small appropriation was made, on the urgent application of parties interested, in having the navigation from Healy's Falls to Rice Lake improved, who represented that the sum of £1,000 would be ample to effect the object, but that amount having been ascertained to be utterly insufficient, no expenditure thereon has been incurred.

The Report of the Superintendent of the works is hereto attached; see appendix, letter D.

RIVER ST. MAURICE.

Communications from parties largely engaged in lumbering on this River, having raised in the minds of the undersigned strong doubts as to the necessity of certain works, especially at the Grais, recommended by the late Superintendent of the works of the St. Maurice, being dissatisfied also that so large a proportion of the outlay on the works should be by day work system, contrary to their repeatedly expressed desire, and having reason to believe that more economy could be exercised in the cost of the establishment, they directed that as soon as the services of Mr. Merrill, for many years the Superintendent of the extensive works of a similar character on the River Ottawa, could be spared from his duties on that River, he should be instructed to make a general examination and report upon the works contemplated and in progress on the River St. Maurice.

This duty has been very satisfactorily performed, and the results of Mr. Merrill's visit from the skill and experience in such works (greater probably than that of any other man in the Province) which he was enabled to bring to bear on the subject, will prove highly beneficial, whether as regards the nature of the works required, or the most advisable mode of conducting their construction. His Report is appended hereto. See appendix, letter F.

From Mr. Merrill's Report it will be seen that he concurs fully, in the opinion of the practical lumberers above referred to, that for general lumbering purposes the crib slide at "the Grais," about to be embarked in, is not required, and the sum which it would cost can, with much more benefit, be otherwise applied, and that at any time hereafter, upon the establishment of extensive saw mills at Shawenagan, a simple deal slide or "dahl" would answer every purpose, instead of the proposed expensive crib slide, piers and other works at the Grais and Gabel Rapids.

In reference to the works at the Shawenagan, Mr. Merrill considers that the new piers recommended by Mr. Dawson, the construction of which was contracted for, are not required, and further progress with them has accordingly been suspended.

Mr. Merrill gives satisfactory reasons, in which he is borne out by the opinion of practical men who have lumbered above La Tuque Falls, that the mode of facilitating the passage of lumber there, as was proposed, is not suited, and if carried out would not be operative.

He recommends the construction of a slide in lieu of it. A very expensive boom had been built about three years since in connexion with the work now objected to by Mr. Merrill, this boom was placed but once, and has not been made use of for the last two years. It can be make available in connexion with the slide recommended by Mr. Merrill.

While in that part of the country, Mr. Merrill took the opportunity of looking at the Vermillion River, a large tributary of the St. Maurice, the vicinity of which abounds in considerable tracks of white and red pine, and he finds that the comparatively small expenditure of about £1,100 on the construction of a Slide, boom and dams, together with about £600 laid out below the Falls, on three small wing dams, and the removal of some boulders would open up the lumbering of that fine River to enterprise.

From the information the undersigned had received as to the great amount of valuable Timber in the River Mattawan and its branches, another tributary of the St. Maurice, Mr. Merrill had instructions to examine and report on that river also, but he was prevented from doing so by the break up of the weather. It is intended that the examination shall be made in the course of this year.

It was considered highly desirable by the undersigned that Mr. Merrill should be accompanied in his visit to the St. Maurice by the Secretary of the Department who, from all the reports, returns, accounts, &c., passing through his hands, was best qualified to make an examination upon the spot, into many points connected with the accounts and establishment at the River St. Maurice, so as to enable him to furnish information, which could not otherwise be so fully and reliably obtained, in order that the desire of the undersigned to put a stop to the system of day's work should be carried out, and such reduction made in the establishment as might be found practicable.

The result of his visit is highly satisfactory; the objectionable mode of day's work is put an end to, by which much saving will be effected, and a reduction of over £600 per annum made in the cost of the establishments.

By the arrangement now adopted there is no longer any necessity for the special boom keeper at the mouth of the River, the necessary duties there, together with those of the general superintendence of the works, will be efficiently performed under the direction of one person

The establishment has been relieved of unnecessary and incapable parties, and arrangements have been made by the Secretary for the collection and disposal of a vast amount of articles of all kinds, obtained at public expense and not required.

From the Report of the Secretary, it is also found that buildings had been erected at considerable expense in several places, upon private property; some of them intended for the residence of the persons attending the slides; for the ground on which the buildings were placed, no agreement or arrangement was entered into or made. This neglect may be attended with expense that might easily have been avoided.

In other cases where the lands have not yet been conceded by the Crown Land Department, it will be necessary that suitable reservations be made. For Mr. Begly's Report, see Appendix, letter G.

SAGUENAY WORKS.

These works, for which a partial appropriation of £3,500 was made last year, consist of certain dams of considerable magnitude, at the outlet of Lake St. John, and a dam and slide some distance below it, by means of which very extensive well timbered tracts, around that Lake, and on the upper Saguenay and its many tributaries, will be opened to enterprise. The principal dams are nearly completed, and considerable progress has been made with the excavation, and preparation and delivery of the timber for the slides and remainder of the works. The several works were laid out by Mr. Merrill, who has lately returned from an inspection of them. He reports most favorably upon the satisfactory progress made by Mr. Gagnon, the contractor, and the creditable and substantial style of the work. An additional sum of £4,500 will be required to fully complete these works, which is as near the amount at which they were estimated as possible.

The construction of an extensive and powerful retaining boom at the head of navigation, for the collecting and separating the lumber belonging to the several parties who will lumber above it, is indispensable. The cost of it, with the necessary piers, will be about £2,500.

The only other work desirable or required for the running of timber from the Lake St. John to tide water is the construction of a small wing dam, and the cutting a channel across a short rocky point, by means of which the timber descending from the Lake, could be easily collected, and passed on without being subjected (as it would be without it) to much damage and detention in the Whirlpool known by the name of "*Le Grand remoux.*"

THE PIERS OF THE RICHELIEU RAPIDS.

River St. Lawrence.

The construction of some piers in the River St. Lawrence, near the head of the Richelieu Rapids, is a subject which had for years engrossed a good deal of attention. It had been frequently brought under the notice of Parliament by parties interested in that part of the country, and during the Session before last, in deference to the report of a Committee of the House, the Executive included in the estimates then proposed, a sum to cover the cost of these piers. Upon this an appropriation was made, after which, tenders for the execution of the work were received, and a contract entered into for it. In the last Report from this Department, the progress made with it up to that period, was stated to be slow and unsatisfactory; during last summer, it was resumed by the contractor, and notwithstanding all the efforts of the Department, the work was continued to be carried on in but a very dilatory manner, until the month of November, when it was finally abandoned by the contractor. The engineer of the Department was immediately sent down, in order to have the piers completed, if possible, before the break up of the River. He found so much of the work as was done to have been executed in a substantial manner, but one of the piers was injudiciously placed, by the local Superintendent, and this, in connexion with some unnecessary changes made in the plans by that officer will increase the quantities of the work. Owing to the very advanced period of the the year when the Department got the control of the work, it has not been possible to complete the fourth and last pier.

The chief benefit hoped for by the parties advocating the erection of these piers is, that they will cause the ice to take across the river above, and so stop the descent of great masses of floating ice, and thereby prevent the jams or *digues* which occasionally form in the rapids below; the effects of these *digues* or solid jams of ice being to inundate large tracts of land bounding the River, inflicting much injury to the residents in the destruction of their farms, &c.

To what extent these benefits will be realised, if at all, by the erection of these piers, the undersigned will not venture to predict, the natural forces to be contended with being many and of vast magnitude.

BURLINGTON BAY CANAL.

The very unusual height at which the water of Lake Ontario has continued during the whole of the past season, interfered most seriously with the effecting of the repairs of the piers so much required.

The superstructure being generally decayed and displaced, it was necessary that the repairs should be commenced at a depth of at least 12 inches below low summer level; in consequence, it was late in the season before the repairs could be proceeded with, and about the middle of the month of November a severe snow storm suspended the operations, which, however, were afterwards resumed, so far as to secure the works against the action of the Lake. Materials are being prepared, and other arrangements made by the contractor, so that the whole of the repairs may be effected in the course of this year.

The continuance of high water interfered in a similar manner with the getting in the foundation for the permanent stone light house, but the necessary preparations are being made for its erection when practicable.

A brick dwelling for the light house keeper has been built, in lieu of the wooden house destroyed by the same fire which burnt the light house there.

The two ferry scows have also been provided and brought into use.

PRESQU' ILE

The general character of this important harbour, and the nature and extent of the works required to make it easy of access, and available to the trade of the adjoining country, as well as to render it an asylum, generally, for vessels seeking shelter in bad weather, were referred to in the last annual report of this Department. By the Report of the engineer on this subject, the advantages which the harbour could be made to afford are many and great; his estimate of the cost of the works required is £6,000, but as this estimate was based only on a hasty survey the undersigned did not deem it expedient to recommend the embarking in any expenditure until a more thorough and close survey, with soundings, &c. (which had been recommended by the engineer) shall be made. In the meantime, steps have been taken for buoying out the present channel on the opening of navigation.

PICTON HARBOR.

Upon the application from parties concerned in the trade and navigation of this town, representing the necessity of some expenditure upon the dredging of the Channel from the lake to the wharves, to enable steamers and other craft to enter and leave the port, a small sum was authorized to be inserted in the estimates for that purpose, which was subsequently provided for by Legislative appropriation. The necessary preparatory examination has been made, the soundings taken, and the dredging machinery and attendant vessels are ready to commence the work on the opening of the season.

WELLER'S BAY.

In April last a memorial was presented, signed by several ship owners, forwarders and others, setting forth, "that an opening of 100 rods wide, with a channel "150 feet wide and 14 feet deep, has, within two or three years, been opened "through the breach from Lake Ontario into Weller's Bay, &c., &c.," and praying that it might be so improved as to form an asylum harbor for vessels in case of need.

In consequence of instructions received to that effect, the Engineer of the Department examined the locality, and reports that the greater part of the beach, which originally faced the south side of the bay, consisting of sand, and separating the bay from the open lake, has been swept away, during the past year, so that the opening is now from three-fourths to one mile in width; consequently, it can afford little or no shelter, in any wind with which a vessel could make the bay, and that during any blow from south to west, no vessel, once in, could come out of it. He states further the impracticability, at any moderate expense, of securing permanently the immediate entrance to the bay, and the existence of two formidable rocky shoals lying in the direct line by which it could be approached, presents, in his judgment, great objection to any expenditure on its improvement. He reports, finally, that one-fifth of the expense that would effect anything of service towards making a harbor at this place (if it could be made at all) would effect the necessary improvement of the entrance to the fine harbour of Presqu' Ile, which is well sheltered and land-locked.

Any outlay upon Weller's Bay, under these circumstances, would appear to the undersigned to be most unadvisable.

PETITE NATION RIVER.

An application was made by several residents in the Counties of Stormont and Dundas, praying that some means might be adopted for increasing the natural volume of water of the Petite Nation River; and suggesting that this could be effected by leading water into it from the Saint Lawrence, in a channel to be excavated from that River, above the Galops Rapids, through the Townships of Edwardsburg and Matilda, to the south branch of the Petite Nation River—the distance being between 7 and 8 miles.

The Engineer of the Department was accordingly instructed to examine and report upon the expediency and practicability of this project, which he did, so soon as several important matters to which his attention had been previously directed permitted him to do so.

He states that when he reached the locality, the weather was unfavorable for the making of a satisfactory examination; but he collected all the information he could on the subject.

He found that the applicants had had the line levelled, and an estimate formed of the cost of excavating the channel, which amounts, according to that authority, to £27,375; but from the low rates upon which this estimate was based, as well as from the several omissions in it, and from the rocky character of the country through which the work would be carried, he is of opinion that the cost involved in the undertaking would be double the amount of that estimate; and as the benefits to be had from it would be of purely a local character, he considers the expense should not be borne by the public.

In this view the undersigned fully concur.

RIVER RIGAUD.

The main branch of this river has its head in the Caledonia Swamp, but a small branch of it is said to rise near the Nation River above spoken of.

Application was also made to have this river examined, with the object of ascertaining whether it would be practicable at moderate expense, to increase the volume of water in it.

The Engineer of the Department was therefore sent to it, and he reports that although he had not been able to collect data sufficiently correct on the subject to form an estimate; yet, from the information he obtained, he is of opinion that the cost of diverting water into this river would not be much less than that of carrying the water into the Petite Nation River above stated.

RIVER AUX RAISINS.

Of this river, also, the Engineer of the Department was instructed to make an examination, for the like object, and on a similar application, as the preceding.

He states that an attempt to increase the capacity of this river "*would, if pos-possible, be more Quixotic*" than of those above mentioned.

This river, immediately North of the Town of Cornwall, is from 15 to 20 feet higher than the St. Lawrence at the head of the Cornwall Canal, from which the applicants supposed the supply might be taken.

TUG SERVICE ABOVE MONTREAL.

No complaints have been received as to the manner in which the Towing service has been performed by the contractors between Montreal and Kingston during the past season of navigation. The contract having expired, tenders have been called for by advertisement, under the authority of the Executive, for the performance of this service for the next three years.

PIERS BELOW QUEBEC.

The several piers built below Quebec are in a good state of repair and efficiency. No expenditure has been incurred upon any of them during the past year, except on that at Point aux Orignaux, to which some additional protection against the ice was necessary. No appropriation having been made for the establishment of a small light at the extremity of each pier, (as had been previously recommended by the Report of this Department,) as well as for the erection of a house near each, for the accommodation of a person to be placed in charge of it, whose duty should be to prevent injury being done to the works by fire, &c., and to collect a small duty from parties making use of them, they continue therefore without a light, nor is any toll collected.

LIGHT-HOUSES BELOW QUEBEC.

All the necessary buildings and principal works connected with the four light-houses constructed under this Department, are completed; the supplies of every description delivered, and all the necessary arrangements for exhibiting these lights on the opening of the navigation, were made last autumn, but the lighting was deferred in order to afford time to give the necessary notice to the Admirality, Lloyds, the several Boards of Trade, &c., of those places from which trade is kept up with the St. Lawrence route. A copy of this note is hereto appended. (See Appendix letter H.)

The engineer of the Department, who finally examined these works in September last, after enumerating the unprecedented difficulties that had to be encountered, and the great expense inseparably connected with the erection of most of these houses, (being on positions wholly uninhabited, and extremely difficult of access), states that the entire of the materials are of the best and most durable class, and the workmanship throughout substantial and creditable; in reference to which he uses the following language:—" Indeed greater attention and care have " been bestowed on the respective structures to render their stability certain than " I ever expected, when there were so many difficulties to contend against; and " in my opinion, the contractor is not only entitled to credit for the manner in " which the work has been performed, but should be allowed a fair and reasonable " profit on the expenditure, as the prosecution of the work has been far more oner- " ous and perplexing than any human foresight could possibly have anticipated."

The lanterns and lighting apparatus, all of the most approved modern principles, and procured from the Patentees in Paris, have been procured and fitted under the direction of mechanics brought out from the manufactory for that purpose. Intelligent mechanics of this country were associated with them in the performance of this duty, who are now so perfectly acquainted with all the details, as to be enabled to take charge of the fixing the remaining similar apparatus when called on, and the others have been forwarded to their homes in France.

The lamps and sundry articles at each house of which there is any danger of their getting out of order, are distributed in triplicate. A chest containing all the tools necessary for effecting repairs, or the renewal of any part of the machinery, is left at each station, and the keepers of the lights have been trained to their use, by the mechanics who had been brought from France. Besides these important necessaries, supplies of all kinds for the maintenance of the lights are delivered at each, together with a good stock of provisions to meet any emergency that may arise from ship-wreck in their respective vicinities. The expense has necessarily been considerable in the first instance, but will be amply compensated for by the confidence that may be safely entertained as to the efficiency and well-working of these lights, which will not be excelled by those of any country. A nine pounder gun with the necessary ammunition, &c., has also been placed at each light-house, in addition to which the engineer has been directed to make arrangements for having an air or fog whistle at each place by September next.

Among the several light-houses of a superior class, enumerated in the last Report as required for the efficient lighting of the Gulf and River St. Lawrence, in addition to those already built, one either on Cape Ray, or Point Enragée, and one at Cape Whittle, are strongly recommended by shipowners and others most deeply interested, as the first that should be undertaken.

Preparatory to their erection, Mr. Page, the engineer of the Department, was sent down towards the close of last year, in order to examine the localities carefully, with the view of determining on the most favorable site for each, whether as regards the greatest advantage to be derived from these lights respectively, as well as the facilities to be had in respect to good foundations, suitable materials, and the after convenience of the parties to be placed in charge.

Prior to determining on the site for the light-house in the vicinity of Cape Ray, on the south-west point of Newfoundland, he carefully examined the line of coast from Cap Auguille, forming the south-west part of St. George's Bay, about eighteen miles to the north of Cape Ray, and also as far as Port aux Basques, about nine miles to the eastward of Cape Ray.

In this extent of the coast, three several points attracted Mr. Page's attention, namely, Cap Auguille, Cape Ray, and Point Enragée, and after closely examining the relative merits of each he recommended that the light should be erected on Cape Ray. The extreme point of this Cape is about two-thirds of a mile wide, from east to west; it is flat and bare, with the exception of the south-west side, and part of the middle, which are covered with dwarf spruce. Seen from any point of view, this Cape, in connexion with the land lying at the back of it, is very remarkable; near the shore it is comparatively low, but about two miles inland there is a conical hill called "The Sugar Loaf," of about 600 feet high; a little further back is a mountain, which rises still higher, and on the north-east side appears to be almost perpendicular; between this mountain and the Sugar Loaf, are two other detached conical hills. All of them in clear weather can be seen for a great distance.

The undersigned, being anxious that in deciding on the site of this very important light they should have the advantage of the highest authority, addressed a communication to Captain Orlebar, Commander of the Royal Navy, now engaged on the surveys at present in progress in the Gulf St. Lawrence. That gentleman most promptly replied: "Having the hydrographers command to furnish your "Government with any information I may possess on subjects connected with the "improvement of the navigation of the St. Lawrence, I am happy to be able to "speak from personal observation with regard to Cape Ray. For the site of a "light I confess that Point Enragée is even preferable to Cape Ray, as it is the "most salient point of the coast, and the neighbouring anchorage in Grand Bay "affords superior facilities for landing materials and supplies than could be found at Cape Ray." It is intended, therefore, that the house shall be built on Point Enragée.. The formation is granitic, and suitable stone and sand for the construction of the buildings are to be found in the vicinity; good fresh water is to be had also, and coal for fuel can be laid down at a reasonable cost.

The other light-house of a superior class proposed to be built this year, will be in the vicinity of Cape Whittle, which forms the western part of Lake Island, off the Labrador coast, about 134½ miles in a south-westerly direction from Greenly Island, the latter being immediately at the western entrance to the Strait of Belleisle, on the Labrador side.

A good deal of careful examination was required to form a correct opinion as to the proper position for this light, and the object in having one placed on Cape

Whittle is principally from the great and numerous dangers with which this part of the coast is beset. In Captain (now Admiral) Bayfield's sailing directions for the River and Gulf of the St. Lawrence, this place is referred to as follows: "The "south-west point of Lake Island has many dangers off it, to the southward and "westward, the two outermost of which, named the Whittle rocks, are half-tide "rocks, distant 2¾ miles from the Cape. All these rocks are steep, with from "twenty to forty fathoms of water between them."

To the S. E. quarter E., distant about six and a half miles from Cape Whittle, is another very dangerous reef, known as the South-makers' Ledge, between which and Cape Whittle lie the Cormorant Rocks. All of these rocks, which are not covered at high water, are so low as not to be seen until close alongside of them. Mr. Page examined each of them, their position, &c., namely, Cape Whittle, the South-makers' Ledge, and the Cormorant Rocks, with a view of determining which would be the most desirable to place the light on, in order to guard vessels off the dangers there to be encountered, and being of opinion that the nearer the light could be placed to the shoals the better, he considered Cape Whittle as too remote to place the light on. The very small extent and the great exposure of the South-makers' Ledge, and its distance from the Whittle Rocks, renders that ledge unsuitable for the site of the light-house, in his judgment, especially as the building there would be attended with vast expense. He ultimately fixed on the Cormorant Rocks, which lie about midway (a mile to the northward) between the South-makers' Ledge and the Whittle Rocks, as the eligible position. The building will be much less exposed than it would be on the Southmakers' Ledge, and being between the two dangerous reefs, it will point out the dangers better than if placed on either, and the buildings for the extra keepers can be on an island about one and a half miles from the light house, between which there would be no difficulty of communication, and of procuring fresh water, &c.

The selection made by Mr. Page for the site for this light is quite in accordance with Admiral Bayfield's opinion, as will be seen from another extract from Captain Orlebar's letter: "With respect to Cape Whittle, having no personal "acquaintance with the Labrador coast, I have respectfully referred the considera-"tion of it to my late commander, Admiral Bayfield, and he directs me to say that "he thinks the most favorable site for a light-house would be the Cormorant Rocks, "lying nearly three miles south-east from Cape Whittle."

The cost of erecting a light-house here, although much less than it would be on South-makers' Ledge, would yet be very considerable.

A communication has been addressed to Captain Orlebar, R. N., submitting the above views as to the positions for these two lights, and requesting him to favor the Department with his opinion, as he is peculiarly capable of forming a correct judgment, from his being engaged in the Hydrographical survey of the coasts in that quarter.

The other light-houses proposed to be erected this year are of the inferior class, one on the south-east point of the "Brandy Pots," the other on the eastern end of the "Long Pilgrim."

It is intended that the small light-house building on the "Brandy Pots" shall be of fire-brick; the light will stand about sixty feet over high water. That on the "Pilgrims" to be also a small, inexpensive building; the light on it, from the height of the island, will be about 150 feet over water.

A careful examination has also been made by Mr. Page, for the purpose of fixing on the sites for the several other light-houses, stated in the last report of this Department as contemplated to be undertaken in the years 1859 and 1860, his general report on all of which will be appended to the next annual one from this office.

TUG SERVICE BELOW QUEBEC.

This duty has been creditably performed during the past year, and, as the establishment of such an efficient towing service becomes better known, the demand for its aid increases, but, unfortunately, not sufficiently so as yet, even with the addition of the bonus granted by the Province, to make a return to the contractor, at all commensurate with his outlay on the vessels and cost of working them.

Besides performing such towing as was called for, important assistance has been afforded towards the relief of vessels wrecked or in distress.

OCEAN STEAMERS.

The manner in which the service has been carried out during the past year, is most satisfactory and in every way creditable to the contractors. The following extract, taken from a late paper, gives, in a condensed form, correct statistics of the line during that period. " The number of passengers carried by this line, home-" ward and outward, in 1856, was 4,321; in 1857 they had increased to 6,685. The " average outward passage in 1856 was twelve days and three hours; in 1857, " only eleven days and one hour. The length of passage homeward in 1856 was " eleven days and six hours, but in 1857 the average length of the voyage had " decreased to ten days and fifteen hours. The Indian performed five complete " voyages from April till November, which was never done by any other vessel. " The Anglo-Saxon and the North American made each four voyages. " The Canadian was lost on her first voyage. The quickest passage *westward* was " made by the Anglo-Saxon, sailed 1st July, in 9 days 13 hours. The quickest " eastward was made by the Indian, sailed 4th July, 9 days 11 hours; this was " the quickest of the season. It is reported that the weekly service of this Company, " both from Liverpool and Quebec, will commence during the approaching sum-" mer; but, at all events, it must begin, under contract with the Canadian Govern-" ment, not later than the Spring of 1859."

The following table furnishes the date of departure and arrival, the length of voyage, and number of passengers, on each trip of the Canadian Mail Steamers, together with the average of their passages to and from the St. Lawrence for the last year, compared with the average of the passages of the other principal lines of Atlantic steamers. It will be observed that, taking the passages out and home, the Canadian steamers have beaten every line with the exception of the New York section of the Cunard Line, and compared with it (even including the very rapid passages of the Persia,) the Canadian Steamers are only beaten by eleven hours per trip.

STEAMSHIP.	Departure from Liverpool.	Date of Arrival.	Passage.		Number of Passengers.	Departure from Quebec.	Date of Arrival.	Passage.		Number of Passengers.
			Days	Ho'rs.				Days.	Ho'rs.	
North American (1)	April 23......	May 7......	14	1	155	May 25......	June 5...	11	7	126
Canadian (2)	May 7......	May 21......	13	10	189	June 7......	June 19...	11	3	131
Indian (3)...............	May 21......	June 3......	12	11	152	June 21......	July 2...	10	10	139
Anglo-Saxon	June 4 & 13	June 25......	12	2	108	July 5......	July 16...	10	2	118
North American ...	June 18......	June 30......	11	20	187	July 19......	July 30...	11	1	104
Canadian (4)	July 2......	July 15......	12	10	173	Aug. 2......	Aug. 14...	11	19	115
Indian	July 16......	July 27......	10	19	182	Aug. 16......	Aug. 27...	10	20	134
Anglo-Saxon	July 30......	Aug. 9......	10	5	174	Aug. 30......	Sept. 9...	9	23	117
North American ...	Aug. 13......	Aug. 24......	10	12	253	Sept. 13......	Sept. 24...	11	5	106
Canadian	Aug. 27......	Sept. 9 ...	12	23	212	Sept. 28......	Oct. 9...	10	19	118
Indian (5)...............	Sept. 10......	Sept. 22......	12	9	205	Oct. 11......	Oct. 22...	10	7	132
Anglo-Saxon	Sept. 24......	Oct. 6......	11	13	252	Oct. 25......	Nov. 5...	10	16	123
North American ...	Oct. 8......	Oct. 22......	13	9	305	Nov. 8......	Nov. 21...	12	22	102
Canadian	Oct. 22......	Nov. 4......	10	12	103	Nov. 22......	Dec. 7...	12	22	103

(1) 33 hours in the ice.—(2) 15 hours in the ice.—(3) 10 hours in the ice.—(4) 11 hours in fog.—(5) 10 hours in fog.

Average passage Canadian Steamships	WESTWARD,	12.20½	—EASTWARD,	11.02	—23.22½

The average passage of the Cunard Steamers for the year were:

Boston Branch	WESTWARD,	13.07	—EASTWARD,	11.12½	—24.19½
New York Branch	"	11.22	"	11.13	—23.11
Collins' Steamers	"	12.16½	"	12.08	—25.00½
Bremin Steamers (Southampton)	"	15.00	"	14.12	—29.12

The undersigned feel it is unnecessary for them to dilate upon the importance of this line to Canadian interests, that being now fully understood and admitted; but they take the opportunity of renewing their strong recommendation for the establishment of a line to run in connexion with it, between Quebec and the lower Provinces.

TEMISCOUATA ROAD.

This important line of Road forms the principal land communication between Canada and New Brunswick: over it the Mails between the two Provinces are conveyed, as also a large proportion of the provisions and supplies for the men and cattle engaged in the lumber trade on the upper St. Johns, the Madawaska, &c.

The length of the Road from the Town of Rivière du Loup on the St. Lawrence to the Provincial line, is 63 miles; the principal part of which is through a very hilly and rocky tract, that presents very serious obstacles to the formation of a good road, and where it passes through more level country, from the nature of the soil and the great length of the water courses, to be excavated, to fall into the natural drains, the effective drainage of the line is very difficult and costly.

A great number of bridges, many of them of considerable size, are necessary, and the number of culverts required is more than ordinary.

Of the total length (63 miles), thirty-six miles have been finished, so far as the specification provides; five are half made, and the clearing and grubbing of about three miles more is done.

The line of road, as now being constructed, follows the old track for about half the distance; the remainder it was necessary to depart from, in order to avoid hills that were impassable for vehicles, to obtain better drainage, and to take advantage of safer sites for the bridges over the several Rivers and streams.

The principle upon which the contract for the Road was entered into, was, that the works were to be confined to the worst parts of the line, being those that from their heavy ascents and descents, their surface being covered with rocks, or their passing through low undrained moors and swamps, were for a large portion of the year impassable for horses. The amount of the appropriation was governed by this principle, the intention being first to have the line (especially that section of it where the old course had to be departed from) opened throughout, so far as chopping and clearing and removing rocks, excavating and embanking to obtain reasonable grades, good drainage and bridging all the rivers and streams. After this had been effected, the improvement of the general formation from end to end, and the stoning or gravelling of such portions as should be found to require it, was proposed to be undertaken, upon the necessary funds being provided.

As stated in the last Annual Report, however, this principle has not been strictly adhered to, the Superintendent having directed a considerable amount of work to be performed at the northern end and elsewhere, which, from their comparatively passable state, were not embraced in the contract, and, although ultimately required for the proper completion of the communication, should have been allowed to remain over until the portion which really presented insuperable obstacles to the traffic of the road were first perfected. Sundry changes in the new parts of the line were also directed by that officer, from time to time, during the progress of the works, which, although obviously much for the benefit of the road, ultimately were productive of considerable increase of labour and cost. The position of several of the bridges and embankments were also changed, and expensive wing walls ordered by him to be built to many of the bridges that had not been previously specified to have such, but were no doubt found to be essential to the safety of the bridges and to the after maintenance of the road; besides these additional works, constant repairs of from 25 to 30 miles of the Road were performed after the work required by the contract had been executed, upon the repeated and urgent representations of the mail contractor, supported by the Postmaster General. These repairs were rendered necessary by the passing of the numerous heavy laden vehicles on the road, going to the lumbering district. Upon these accounts the Contractor has a considerable, and as the undersigned believe, a well founded claim for compensation, the most reasonable mode of settling which would seem to be by arbitration.

The material of which a large portion of the surface of this road was formed, is unavoidably of a very *sleechy* nature, retaining moisture, &c., for a long time, and washing away easily from friction, so that after a section of it may have been perfectly finished, the passing of a few laden vehicles over it, in rainy weather, completely breaks it up, and leaves it as impassable as ever. It is evident, therefore, that such portions of it must receive a proper coat of metal, either of stone or gravel, as can most easily be had, and it is very desirable that provision be made for so covering the worst parts during the approaching dry season; otherwise the heavy traffic over it in the fall will be ruinous to the Road.

This communication is becoming every day more important · the traffic on it is vastly increased since its improvement has been commenced, and, when completed throughout, a very considerable trade will be carried over it.

THE METAPEDIA ROAD.

By this is understood that portion of the communication between the River St. Lawrence and the Bay of Gaspé, from the St. Lawrence to the head of Lake Metapedia, a distance of about 33 miles. The exploration and survey of the route is being made by Mr. G. F. Baillargé, a gentleman who has for many years been engaged on several important works under this Department, and has acquired very considerable practical experience in the laying out and construction of them.

On the conclusion of the works of the Junction Canal, of which he was local Engineer, he was selected for this survey, in which he has made satisfactory progress, notwithstanding the unfavourable weather he has had to encounter.

By his report hereunto appended, (see Appendix I,) it will be seen that he has had to examine three distinct routes before he was able to select a favorable one.

Mr. Baillargé describes the section of the country traversed by the route to be favorable for settlement throughout, the soil being of a very good quality, free almost every where from rocks and boulders, and there are large tracts of good level ground, requiring, however, general drainage.

The southern portion of this (late Metapedia) road continues from South Metapedia to Gaspé Bay. Towards the improvement of it a small appropriation was made last session.

It follows generally in the line of the Kempt road, from a large proportion of which, however, it was necessary to adopt deviations, in order to render the communication of a more practicable character.

This southern division has been laid out by Mr. Lefebvre, who has also had the management of the works, whether of improvement of parts of the old line, or the construction of the new portions. The works are conducted judiciously and with economy. They are principally let in small lots to residents of the adjoining country.

The Metapedia road will be of considerable importance in opening up that section of the Province, hitherto but little attended to; it will give access from the old settlements to the large tracts of land described by Mr. Baillargé as so favorable for cultivation, and of course promote their settlement; and it will thereby beneficially affect the interests in the very valuable fisheries off that coast.

THE MATANE AND CAPE CHATS ROAD.

A small appropriation was made last session for the improvement and extension of the coast road on the south shore of the St. Lawrence from Matane to Cap Chats.

The management of the works was entrusted to Mr. Fraser, who laid out the line. The work is performed on the same system as that adopted on the South Metapedia road. As much progress has been made as could be expected, from the necessarily late period at which the road was commenced.

THE MALBAIE AND GRANDE BAIE ROAD.

This is the only line of communication from Murray or Mal Baie on the north shore of the St. Lawrence to Grande Baie, the principal settlement on the Saguenay, a distance of 62 miles.

Mr. Paschal Bouchard has had the management of the works, and the undersigned have every reason to be fully satisfied with his exertions, and the extent and class of the work which he has effected at so little cost.

It is not intended to complete the road of the narrow width latterly adopted, as the sun and air would thereby be shut out, and it is found that roads, under such circumstances and through such material as this line is, rapidly break, and their maintenance is much heavier than when the breadth is sufficient to leave their surface exposed to the action of the sun and wind.

The object Mr. Baillargé had in view in instructing Mr. Bouchard to limit himself to 12 feet width, was to extend the opening and clearing as far and as quickly as possible, so as to afford facilities for the transport of the mail into the settlement.

The road may be looked upon as about half made, so far as it is capable of passing horses and wheeled vehicles on it.

The entire can be brought to a similar state of completion during the present year for the sum of £1000, but from £500 to £600 in addition to that sum would be required to open the side drains perfectly, and excavate sundry off-take drains, and to clear away trees in places to let the road have the full benefit of sun and wind.

Mr. Bouchard's Report is added hereto. See Appendix K.

THE NORTH SHORE ROAD.

By this is to be understood the extension of the road on the North shore of the St. Lawrence from the County of Charlevoix by Tadousac, to the River Escoumains, a distance of about 30 miles.

The line was explored and laid out with the view to colonization and ordinary traffic by Mr. Boutillier, under the directions of the Commissioner of Crown Lands.

The sum of £500 was appropriated towards its construction about two years since: this sum is expended, and one-third of the work may be considered done. Over nine miles of road have been made in good substantial manner.

The sum of £500 can be well expended this present year, and a like sum in 1859 would finish the road to the Escoumain River.

This road will be of important benefit in cases of shipwreck which frequently occur on that coast. Hitherto many unfortunate seamen, after escaping a watery grave, have perished on shore from their being no road by which they could reach the settlement.

GROSSE ISLE.

The temporary manner in which the buildings connected with the Quarantine Station at Grosse Isle was constructed is much to be regretted, as, notwithstanding the heavy expenditure that almost every year has to be incurred in consequence, the premises can scarcely be said to be in an efficient state of repair.

The outlay on them during the past year was much less than ordinary, amounting to but £228 12s. 1d.

By a Report and estimate furnished by the Superintendent of the works in the Quebec District, the sum of £1053 11s. 8d. is represented as now required to be laid out on sundry works of repair, but by a modification of the specification of those works, the undersigned will be enabled to reduce that amount by about £250. Authority having been received for the work, tenders will speedily be called for and the work commenced so soon as the season will admit of it.

PUBLIC BUILDINGS.

COURT HOUSES AND JAILS.

MONTREAL COURT HOUSE.

The improvements in the arrangements for heating this extensive building have been carried out successfully, under the careful management of an experienced person in charge of the furnaces and registers; the heat is more equally diffused, and by his economical system of using the fuel, a great saving in its cost compared with the preceding year will be effected.

The building continues in good preservation, and little or no expenditure has been incurred for the past year. An outside wood-shed is still much required; also the removal of that portion of the old building occupying the projected approach from Jacques Cartier Place to the Champs de Mars. The enclosing wall and iron railing in the rear of the building remain to be completed. It is a question whether, in the proposed widening of Notre-Dame Street, the wall and railing immediately in front of the Court House may not be dispensed with, as an open terrace at the level of the street may be considered preferable to fencing off the space in front. If this course be adopted some expenditure will be avoided.

MONTREAL JAIL.

No authority has been received since the last Report for the expediting the improvements of or additions to this building: the insufficiency of which in almost every essential requirement of a proper prison, has been stated in the several annual Reports of this Department. It has also been strongly represented from time to time by the grand jurors and several of the Judges. Dr. Nelson, the Inspector of Prisons, has submitted his views as to the alteration and additions that were necessary; on receiving which the undersigned had an estimate made of the cost of them, which, it appears, would amount to the sum of $17,736.

The total amount remaining available towards any work on the jail being only $5,458.

AYLMER COURT HOUSE AND JAIL.

Representations from the presiding Judge, and a copy of the presentment of the grand jury of the District of Ottawa have been received, setting forth the defective state of the Jail of that District, and requiring "many alterations" to be made, amongst others: "Rooms to be used as hospitals for males and females; a "proper room for debtors; a separate apartment for juvenile offenders; a dark "room for unruly prisoners, and a convenient space for the performance of hard "labour, by those condemned to that punishment. The present stone flooring to "be planked over, additional water-closets on the upper stories, raising the gaol "wall, &c." For these improvements the Sheriff submitted plans, estimates and specifications to the Provincial Secretary, who transferred the same to the Commissioners of Public Works, by whom they were transmitted to Dr. Nelson, the Inspector of Prisons, with a request that he would favor the Commissioners with his opinion on the proposed alterations.

That officer has raised strong objections to the interior arrangements so contemplated, and they appear to the undersigned to be well grounded. Plans of the alterations will in due time be prepared in this office more suited to attain the object in view, so as to be ready on the opening of the building season.

THREE RIVERS JAIL.

Towards the close of the past year a communication was received from the Prothonotaries of the District representing that certain repairs to the roof were required, and that the two Municipalities had called for the construction of a planked foot-way on the jail-side of the streets around it. Authority was received for the repairs to the roof, but the expenditure upon the foot-way was not sanctioned. Tenders were then called for, for the execution of the work of repairs, and the lowest tender was accepted; after some time, however, it was found that the person so tendering was incapable of proceeding with them unless an advance of money was made to him: this not being considered prudent, the party giving the next lowest tender has been called upon.

Double iron doors have been furnished for the Vault in which "the Notarial minutes" are deposited.

ST. HYACINTHE COURT HOUSE AND JAIL.

It was stated in the last Report that the Grand Jury of the District had presented this Jail as being too small, insecure, dilapidated, and utterly unfit for the purpose of a Jail. The Officer of the Department was in consequence directed to examine and report upon it. By his estimate the sum of about £160 was necessary on exterior reparation, and he stated " that a considerable outlay on the interior is required, but the building being so old and damaged, he has only recommended the above outlay."

No expenditure has been since incurred, as it was considered desirable, upon the passing of the new Judicature Act, that besides the building of a suitable Jail and Court House in each of the new districts from the funds available for that purpose, the rebuilding or general repairs of the Court Houses or Jails should be authorized in such of the old distitricts as the unfitness of the present buildings pointed out to be necessary, such as St. Hyacinthe, Sherbrooke, Kamouraska, &c.

Uniform plans for Jail Buildings on two scales, so as to suit the wants of each of the new Districts respectively, are now being made; these plans will be prepared with due regard to the health and security of the prisoners, as well as to the other indispensable requisites of a Public Jail, such as ventilating, classification, employment of the prisoners, &c., so far as the maximum sum authorized by the Act to be expended will admit of.

SHERBROOKE COURT HOUSE AND JAIL.

The state of these buildings has been the subject of repeated condemnatory presentiments by several successive Grand Juries. Many of the preceeding observations, under the head of St. Hyacinthe Jail and Court House, apply more strongly even to this case. Late in the fall authority was received to expend a small sum of money (£181) upon such repairs of the Jail as were most pressingly called for, and directions to proceed with them were given to the Superintendent of Works, who represented that from the then advanced period of the year, they must be postponed until spring. The Court House also is sadly in want of improvement, but as the staunching of the roof must necessarily precede the repairs of the ceiling and other necessary interior works, and as it cannot be undertaken at this season, the whole are unavoidably put off until spring. The undersigned are of opinion that the Court House is capable of being rendered suitable for the transaction of the Judicial business of the District, but at considerable expense, as, from the nature of the foundation of the site upon which it was built, the building has been very injuriously affected by the action of the frost, to remedy which much outlay must be incurred.

The Jail building, from its original bad plan, and mode of construction, and its present dilapidated state, the undersigned are of opinion should be condemned in toto, and the erection of a suitable one provided for. In the mean time the small sum authorized to be expended will be applied in the spring to the best advantage. When a new Jail shall be decided upon, it would be necessary that a suitable and sufficient site should be procured for it, as the ground on which the present Jail stands, besides the disadvantage of being surrounded on two sides by public streets, is so limited in area (being only 128 feet by 97 feet) as to present no opportunity whatever for having proper and classified airing grounds, &c.

QUEBEC COURT HOUSE.

An expenditure of $300 has been made by the Commissioners in restoring the Hall and apartments, recently occupied by the Seignorial Tenure Commission, to their original state of accommodation for the Courts of Law, with additional seats for the Judges, &c.

QUEBEC JAIL.

Little has been done on these premises beyond planking the Court yard, laying down box drains, fencing, and side walks around the exterior.

The Superintendent recommends taking down and rebuilding the prisoners' water closets in the coming spring, as he reports the walls past repair.

Plans for the proposed new Jail remain in the hands of the Commissioners, awaiting the decision of the question now pending with the military authority, for the exchange of ground for a site that will not be considered by th m as injurious to the defence of the fortress.

KAMOURASKA JAIL AND COURT HOUSE.

Upon this insecure and imperfect edifice, unfit in every respect for the purpose to which it is applied, an expenditure of $400 has taken place, in removing and rebuilding in a more secure manner an interior wall to separate the cells from the Prothonotary's Offie, and to prevent intercourse between the males and females. The present building was originally a private house of but moderate dimensions, and can never be converted into a Court House and Jail worthy of the name.

SITES FOR JAILS AND COURT HOUSES IN THE NEW DISTRICTS.

Sites are being selected and obtained for the several Jails and Court Houses to be erected in the new Districts under the late Act. As already stated, plans are also being prepared which will be of two classes, to meet the present wants, and so designed as to be capable of being hereafter enlarged when the increase of population may require it.

CUSTOM HOUSES.

QUEBEC CUSTOM HOUSE.

The whole of the works of this building, so far as they have preceeded, have been executed in a most substantial and creditable manner, and the materials which have been laid down towards its completion, are of the best description of their respective kinds.

Instead of the foundation being laid upon rock at a few feet below water level, as had been represented to be practicable, it was found necessary to excavate to a considerable depth, and to form an artificial foundation; to effect which, as well as to add to the dimensions of the walls, and lay the masonry in cement, which was unavoidable, a large extra cost had necessarily to be incurred. These extras, together with the additional sum which had to be paid for the change of the site, so enrcoached on the appropriation made for the erection of the building as to leave the available balance quite insufficient for its completion. Under these circumstances an order in Council was made on the 21st of January, 1857, directing the suspension of the works, which accordingly have not been proceeded with since that time. Several suggestions have been offered and considered for the lessening the costs of finishing the building among which was a proposition to omit the whole of the architectural ornaments of the *façades*, but this saving could be carried out only to a very limited extent in the then state of the works, as the greater portion of the ornamental stone was delivered or prepared. Another suggestion was to substitute timber work instead of masonry in the wharf walls and landing steps on the water front of the building, and to very much limit the extent of the area around it which it had been intended to fill in. These latter ideas can be carried out, but at some sacrifice as regards appearance and convenience.

Another suggestion was to apportion a part of the building to the purposes of a Post Office, so that an appropriation that had been made for the erection of a new Post Office might be made available towards the completion of the building, and in obedience to an order in Council to that effect, the plans of it were submitted to the Postmaster-General, in order that he might decide upon an arrangement of the apartments that would best suit for the transaction of the business of the Post Office. This decision has not yet been communicated to the undersigned, and the works remain in *statu quo*, except that the brick walls of the basement are suffering from moisture and exposure to the frost.

The ultimate cost of the building, so far as can now be ascertained, would be about £57,144 19s. 1½d., viz:

Purchase of site	8000	0	0
Amount of building contract	39975	0	0
Amount of extras, to 5th October, 1857	9160	19	1½
	£57144	19	1½
Amount of appropriation and order in Council	36099	0	0
Deficit	£21045	19	1½
If part of the building is devoted to a Post Office, and the appropriation for it made applicable to the building	15000	0	0
	£6000	19	1½

The sum required to be further appropriated therefore would be £6045 19s. 1½d.

In the foregoing statement the whole amount of the building contract is set down, as the deduction from it for some saving to be made by the omission of the cupola, &c., would probably not more than compensate for what the contractor may prove himself entitled to, on account of the delay of the work and injury to his materials, &c.

The undersigned, however, feel bound to express their apprehensions that the site of the Custom House will be considered very inconvenient by the citizens for the transaction of the business of the Post Office.

MONTREAL AND TORONTO CUSTOM HOUSES.

These buildings respectively remain in the same state as at the period of the last report, and the undersigned have nothing to add to the observations respecting them therein made.

KINGSTON CUSTOM HOUSE.

The works of the buildings are progressing rapidly toward completion, and in a highly satisfactory manner. It was roofed and the sashes set in before winter, and it is now prepared for the plastering.

The change of the site made subsequent to the contract will render a dwarf stone wall and iron railing necessary.

HAMILTON CUSTOM HOUSE.

Plans and estimates had been prepared under the direction of this Department, in obedience to an order in Council, for this building. After some time, an objection was raised to them that they were upon a scale larger and more costly than was required.

An appropriation was made to cover the cost of the erection of a lesser building, for which plans were made, so that the cost of their execution should fall within the amount of the appropriation so made, and the necessary timber was furnished for the building to ensure its being seasoned. Objections having been subsequently raised and remonstrances made against the carrying out of the reduced plans, further action has been deferred until this question should be disposed of.

POST OFFICES.

QUEBEC POST OFFICE.

This work has been referred to under the head of Quebec Custom House.

MONTREAL POST OFFICE.

No expenditure under this Department has been incurred on the building the past year.

KINGSTON POST OFFICE.

The works are progressing in a rapid and very satisfactory manner, and it is expected they will be completed within the period stated in the contract. It is believed that an additional furnace will be required to heat the building sufficiently. A fuel shed must be erected, which had not been provided for; the cost will be but small.

TORONTO POST OFFICE.

But little outlay has taken place on this building during the last year. It has been confined to some alterations of the delivery wicket, and other small interior fittings, &c.

HAMILTON POST OFFICE.

Expenditure to the amount of about £75 has been incurred since the date of the last report, upon increasing the means of heating, and other small interior repairs and alterations.

LONDON POST OFFICE.

The circumstances connected with this proposed building are very similar to those in which the Custom House at Hamilton is represented in the report upon it to stand. Plans were prepared for it of much the same style and extent as those in course of erection at Kingston. On being submitted for approval, they were considered unnecessarily expensive, and an appropriation of a limited extent asked for, and was obtained, when another set of plans were prepared, the cost of which should fall within the amount of this appropriation.

Finally, however, it was considered that the style and character of the buildings erected in the immediate vicinity of the Post Office site, and the convenient transacting of the Post Office business of the city, called for an edifice of a more respectable description than that contemplated. The matter so rests.

GOVERNMENT HOUSE AND PUBLIC OFFICES, TORONTO.

GOVERNMENT HOUSE.

The expenditure for the last year comprises repairs of the brick culvert and improvement in drainage, new flag staff, alterations in the conservatory, and interior repairs of various kinds.

PUBLIC OFFICES.

In the Executive Council Office, Provincial Secretary's, and Registry Offices New window sashes, repairing roofs, new partitions, panelled doors, roof ladders, paper cases and pigeon holes, new flooring, ventilators, new porches, walnut book case and press for Crown Law Department, and sundry repairs, constitute the items on which expenditure has been incurred.

In the Inspector General's Department: Erecting new sheds for fuel, 75 feet long; new door and partitions, pigeon holes and cases, hat rails, sundry repairs to blinds, fences, &c., have been made.

In the Receiver General's Department: New glazed and panelled doors, wood boxes, steps, water pipes, sink, new shelving and pigeon holes, including coal and wood sheds and flooring ditto, and sundry other works, were required.

In the Crown Lands Department: There have been provided new circular-headed double windows, new ventilators on roof, new doors, glazed sashes, new partitions, cases, pigeon holes, &c., green baize doors, alterations and repairs of sundry kinds.

In the General Post Office: New shelving for papers, new window shutters, and book cases with pigeon holes, &c.

In the Bureau of Agriculture and Adjutant General's Department: New shelving and repairs, repairing the roof, shoring up the end walls, new door and outside porch, paper presses, &c.

In the Department of Public Works: Repairing the roof, stairs, water pipes, new closets, mantelpiece, and outside porch were necessary, and some fencing in front and rear.

NORMAL AND MODEL SCHOOLS.

QUEBEC AND MONTREAL.

These buildings are now under the control and management of the Superintendent of Education for Lower Canada. Some small expenditure, only on the requisition of that officer, has been incurred during the past year, chiefly upon Plumber's work.

MARINE HOSPITAL, QUEBEC.

The patients who occupied the wards in the old portion of the building having been removed some time since into the new wing, an opportunity has been had for the general painting, repairing and cleansing of the former.

In the annual Report of 1855 certain repairs, additions and improvements were represented to be necessary and estimated to cost about $12,096. In the Report of the subsequent year, the progress made with these works in the interior was detailed, and a few additional amendments were stated to be indispensable, and they were necessarily carried out in the progress with those previously recommended and provided for. They comprise chiefly the reconstruction of the wharves for the protection of the property against the action of the tides with a floating landing recommended by the Medical Officer, for the easy landing of the sick and maimed; the erection of a new fever hospital and the removal of the old fever shed; he exhuming of the corpses from the old burial ground, enclosing the ground with a suitable fence, wall, wickets, &c. The cost of these will exceed the sum appropriated by about £350.

GUN SHEDS.

The buildings for the reception and safe keeping of the volunteers' field artillery, harness, small arms, &c., detailed in the last report as being in progress, in Quebec and Toronto, have been completed, and but a trifling expenditure has been from that period incurred thereon. In the City of Hamilton a lot has been since purchased for a site of a Gun Shed, and a substantial brick building erected on it, the cost of which, including the sum paid for the lot, is $5,012.

LEGISLATIVE BUILDINGS.

TORONTO.

The expenditure, during the past year, upon these premises has been chiefly called for by the imperfect state of the roof, which leaked badly in every direction, to remedy which, as well as in some measure to lessen the risk of fire from sparks falling on such a large shingle surface, authority was received to cover the building with McIntosh's patent galvanic cement.

Doubts had been entertained for some time as to the sufficiency of the framing of the roof, and its connexion with the ceilings, &c., which have been fully confirmed during the progress of the recovering of it, for which a contract had been made with the patentee. By the conditions of the contract, the old shingles were to be stripped off, the roof boards rejointed and covered with the patent galvanic preparation. The contractor being bound, under a penalty, to take all the necessary precautions, by means of having suitable tarpaulin in readiness, &c., to guard against any damage being done to the building by rain or damp during the process of the work, and should any such occur he was bound to make it good at his own cost. Notwithstanding the repeated remonstrances and notices from this office from time to time, complaining of the dilatory and unsatisfactory progress of the works, their advance was not improved. In the mean while the contractor died and, as time was pressing, the roof still far from being staunched, another coat of the covering material to be laid on, and urgent enquiries daily being made by the Executive, as to when the building could be calculated on to be ready for the meeting of the Legislature, it was found necessary to put the completion of the work in other hands, by whom it was effected in as short a time as possible.

Through the remissness of the original contractor and his inattention to his engagement, a considerable amount of damage was caused by rain to portions of the ceilings of the two chambers, so that their removal became necessary. In doing this, the ceilings generally, but especially the cornices, appeared to be so unsafe that an eminent architect of this city was requested, in conjunction with an officer of this department, to examine the roof and ceilings particularly. From their report it appeared that, owing to their original malconstruction, the ceiling and cornices were in a dangerous state, from not being sufficiently supported, that some of the principal timbers of the roof itself were split, sunk and giving way, that the suspension of the cornices, (each foot of which weighed not much under 100lbs.,) depended solely on the cohesion of the plaster, having been put up without the usual precaution of bracketing, &c., and from the continual sinking of the timbers, the adhesion of the plaster was daily less to be trusted. These heavy cornices had therefore at once to be removed, and light mouldings substituted, and the framing of the roof had to be screwed up and strengthened by iron plate straps, tension rods, &c.

Advantage was taken of the necessity of removing the ceilings to add materially to the means of ventilation, the want of which had been so much complained of. Under the circumstances above detailed, the damage caused by the contractor having allowed the rain to penetrate to the ceilings must be looked upon rather as providential: had it not occurred, the unsafe state of that part of the roof would not have been ascertained, and, in all probability, some serious accident would have taken place.

The cost of altering some of the furnaces and hot-air pipes, to meet the regulations of the fire insurance companies; improving the sewerage and drainage generally; adding to the means of better ventilating the Library wings; and of sundry repairs, constitute the remainder of the outlay on these buildings. It would be highly desirable that authority should be given to secure better means for the supply of water to the premises. Large cisterns are established in convenient positions throughout the building, but the pipe conveying the water from the exterior is of very small dimensions, and would be found to be very insufficient in case of fire.

LUNATIC ASYLUM.

The roof of the temporary Branch Lunatic Asylum, in the University grounds, has been thoroughly staunched, and some small expenditure incurred in fencing about the building.

A good site has been obtained for the Criminal Lunatic Asylum, near Kingston, in connexion with the Provincial Penitentiary, and plans are being prepared, upon a moderate scale, for premises suited to the object.

SURVEYS.

Under this head, the undersigned had been led to expect that they would have been enabled to submit a full statement, up to the present time, of the result of the survey, under the direction of Mr. Shanly, instituted for the double purpose of determining the practicability and probable cost of effecting a continuous water communication from Montreal to Lake Huron, by the line of the Ottawa, Lake Nipissing, and French River; the scale as to depth of water, &c., upon which it would be determined by the country and character of the chain of waters through which it would pass; as well as to ascertain the most feasible route for a railway, from some point on the Chats Lake, or above it, to Georgian Bay, either following in the valleys, or in the vicinity of the waters above mentioned, or by a more direct line: such reconnoisance to embrace a general exploration of the nature of the country through which the line would traverse, its fitness for settlement, &c.

The documents and details necessary for this statement not having yet been furnished, the undersigned are necessarily obliged to postpone it to a future period.

A detailed and valuable survey has been made by Mr. Norman, acting under this Department, of the portion of the Ottawa comprising the Chats Falls. It was directed, in the first instance, with a view of ascertaining the extent of water power that could be had there, and the best mode of obtaining it; but in the course of the operations, various lines of levels have been taken, and the object of the survey has been extended to embrace the reach of the river between the Chaudière and Chats Lakes, so as to render it of importance for navigation and other general purposes.

Mr. Norman deserves much credit for the amount and accuracy of the work he has effected in so short a time, with but a very limited establishment. His report is hereunto appended. See Appendix, letter L.

A survey of the river generally, and an examination of the shoals, and best positions whereon to place lights and beacons, for the facilitating the present navigation between Ottawa and Lachine, is now being prosecuted by Mr Slater, under directions from this office.

The results of the surveys by these two gentlemen, which can be had within a short time and at comparatively small expense, together with those of the surveys from Ottawa to the Chaudière Lakes, made by Mr. Gallwey, under the direction of the Engineer of this Department, will enable the undersigned to submit a general report and estimate of the best mode and cost of improving the navigation of the River Ottawa, from Lachine to the Portage du Fort, and they trust that the extent and nature of the information which they calculate in having from the several parties engaged, since August, 1856, on the Upper Ottawa, &c., when furnished, will, in connexion with the valuable maps, sections, and other details, obtained under the direction of Sir William Logan, be sufficient to form a basis for a reliable report on the practicability and best manner of opening a navigation throughout to Lake Huron, with an approximating estimate of the cost thereof.

The undersigned are aware that some dissatisfaction has been expressed at the suspension of the survey of the portion of the route above Portage du Fort, but they consider they are fully justified in having recommended such suspension in consequence of the whole of the funds (£15,000) appropriated for the survey having been expended, of the large amount at which the completion of the survey was estimated (£40,000,) the unnecessary detail (attended with great cost) of the survey as latterly conducted, and the expectation they entertain that they will be enabled, by the documents above mentioned, to lay the matter before Your Excellency in a way sufficiently clear and explicit both as to the practicability and the cost, as to admit of a safe decision being come to, with respect to the policy of proceeding with the work. Should such be decided on, the stoppage at present of the heavy costs of the survey, as being carried on, will in no way retard the operations, or extend the period within which they might be completed.

All which is respectfully submitted.

CHARLES ALLEYN,
Chief Commissioner of Public Works.

HAMILTON H. KILLALY,
Assistant Commissioner of Public Works.

Department of Public Works,
Toronto, 8th March, 1858.

No. 1.

Statement of the Works of Canada, under charge of the Department of Public Works, which yield Revenue, shewing the cost of construction thereof, under that Department, to 1st January, 1858; Expenditure of the year 1857; also the cost incurred for Repairs and Management.

Works.	Cost of construction to 1st January, 1858.			Expenditure in 1857 included in foregoing column.			Cost of Repairs and Management in 1857.		
Canals.	£	s.	d.	£	s.	d.	£	s.	d.
Welland	1094099	17	1	16988	14	3	27157	6	2
St. Lawrence Canals.									
Lachine	493626	16	10	4351	4	9	8415	1	4
Beauharnois	384375	7	8	3442	8	2	5408	9	8
Cornwall	113115	2	7	2535	11	4	4178	0	5
Williamsburg	272418	7	2	1195	13	5	2041	17	1
Junction	52807	16	8	5982	5	4			
General Expenditure	18403	12	4	484	17	8	....		
Ordnance Canals	....			....			8113	4	3
Chats	60278	18	8	3500	0	0	....		
Chats and Chaudière	618	4	3	618	4	3	....		
Chambly	16863	6	3	....			4078	9	6
St. Ours	38256	18	3	37	10	0	2335	7	11
St. Anne's	26939	2	11	1372	0	3	244	12	3
Burlington Bay	60302	0	7	931	10	0	....		
Scugog Inland Navigation	19825	19	1	10339	6	11	30	0	0
Slides, Dams, &c.									
Ottawa	125621	19	9	5891	13	8	3413	11	8
St. Maurice	57951	2	2	5835	5	7	2363	5	6
Trent	88025	19	0	....			229	13	11
Saguenay	2040	18	2	2040	18	2	....		
Harbours.									
Port Stanley	54132	3	6	6582	1	8	....		
Port Bruce	537	0	0	537	0	0	....		
Lake Huron	14720	6	6	4790	11	4	....		
	£2994960	19	5	£77456	11	9	£67998	19	8

No. 2.

STATEMENT of Works of Canada, under charge of the Department of Public Works, from which no Revenue is derived, shewing the amount expended thereon, up to the 1st January, 1857, and the expenditure from that date to the 1st January, 1858.

Works.	Expenditure to 1st January, 1857.			Expenditure to 1st January, 1858.		
	£	s.	d.	£	s.	d.
Public Buildings; Rents, Repairs	43797	14	11	7199	19	9
Parliament Buildings, Toronto	88581	18	11	1339	14	0
Government House, do				1378	3	1
Custom House, do	1139	9	11	60	0	0
Post Office, do	6532	14	1	463	16	8
Court House, Montreal	69112	16	3	3734	18	8
Custom House, do	....			226	18	2
Jail, do	....			315	18	0
Marine Hospital, Quebec	18923	3	5	3107	19	2
Custom House, do	20976	5	7	15002	4	6
Gaol and Court House, do	8331	0	11	308	3	8
River St. Lawrence.						
Tug Boats, Upper St. Lawrence	27162	14	11	6272	11	2
Tug Boats, Lower St. Lawrence	61873	15	7	13396	2	7
Landing Piers	185905	18	11	6337	1	2
Emigration	3125	5	0	1429	2	1
Light Houses.						
Light Houses below Quebec	69915	13	11	16324	2	10
Light House Apparatus, below Quebec	10840	0	0	2810	10	10
Light Houses (new) below Quebec	....			3853	10	0
Point Pelée Light House	3213	12	9	8733	15	0
Snake Island Light House	....			663	5	7
Bay of Quinté Light House	....			19	4	6
Light Houses, Lake Huron	19302	4	7	9191	8	11
Light House Apparatus, Lake Huron	9036	9	8	8251	5	2
Hamilton.						
Post Office	12197	17	6	715	15	7
Custom House	2215	2	9	267	0	0
Kingston.						
Custom House	2269	14	4	3891	5	8
Post Office	2512	0	10	4682	0	10
Lunatic Asylum	658	8	4	14	1	3
Roads.						
Canada and New Brunswick	11517	12	0	14179	14	2
Metapedia	....			1500	0	0
Mal Baie and Grande Baie	....			500	0	0
Longueuil and Chambly	....			200	0	0
St. Denis and Cap Chats	....			2000	0	0
Marmora	....			400	0	0
Hamilton and Brantford	....			17	18	1
Ocean Steamers	50787	19	11	10120	5	7
Removal to Toronto	43223	6	1	1024	11	0
Administrator's Removal to Toronto and back to Montreal	....			889	3	0

No. 2.—(*Continued.*)

Works.	Expenditure to 1st January, 1857. £	s.	d.	Expenditure to 1st January, 1858. £	s.	d.
Miscellaneous.						
Arbitrations	70181	10	4	4329	19	11
Surveys, generally	5406	8	9	1310	9	6
Parliament House, Quebec (in consequence of fire)	207	7	9	16	18	4
Boundary Survey, Canada and New Brunswick	8280	12	8	32	12	8
Chambly Canal Claims	265	14	5	31	16	10
Observatory, Quebec	1	7	0	55	18	6
Observatory, Toronto	3462	18	7	8	4	8
Female Lunatic Asylum, Toronto	2814	14	6	176	19	8
Dredging Vessels, Steam Pumps, &c.	3019	10	8	220	19	8
Dredging Narrows, and New Bridge, Lake Simcoe	....			2034	11	6
Dredging at Picton and Presqu' Isle	....			68	17	6
Montreal Armoury	....			35	7	6
Gun Sheds, Hamilton	....			1002	15	11
Gun Sheds, Quebec	396	9	1	705	1	6
Gun Sheds, Toronto	869	0	4	29	0	10
Improvements, Ottawa Navigation	933	17	11	284	5	11
Improvements, River Thames Navigation	....			306	3	0
Trinity House, Quebec	2000	0	0	2000	0	0
Richelieu Rapids Improvements	26	10	0	1719	8	1
Ottawa Survey	5007	8	7	9598	2	1
College Avenue Grounds	624	18	0	258	9	6
Normal School, Montreal	121	14	11	1232	9	2
Normal School, Quebec	....			1741	4	1
Communication with Red River	....			1151	2	9
Governor General's Visit to the Ottawa	....			371	14	4
London Post Office	....			2163	0	0
North River and Petite Nation Bridge Improvements	....			257	0	0
Boarding Canadian Steamers	....			50	0	0
Protection of Fisheries in the Gulf	....			534	0	0
Plans for Public Buildings	....			1260	1	0
Post Office Department	....			32	10	0
Pier at L'Orignal	....			250	0	0
Aylmer Court House	....			1	5	0
Ordnance Property	....			29	3	4
Bureau of Agriculture	....			266	7	6
Adjutant General's Office	....			238	2	6
				184570	3	0
LESS Included under head of Arbitrations, also in Construction Account No. 1	....			2624	1	4
				£181946	1	8

No. 3.

A detailed Statement of Expenditure, since date of last report, on the erection, repairs and maintenance of Provincial Light Houses, connected with the Inland Navigation and below Quebec, for the year 1857.

No.	Name of Light.	Name of Keeper.	Amount of Salary paid.			Supplies and Repairs.			Total.		
			£	s.	d.	£	s.	d.	£	s.	d.
1	Lachine Pier	John Norton	96	5	0	179	19	0	276	4	0
2	Light Ship										
3	Chateauguay No. 2	Pierre Landre	62	10	0	402	5	8	464	15	8
4	Chateauguay No. 3	Benjamin Picard	62	10	0	488	15	8	551	5	8
5	Beauharnois	Joseph Meloche	56	5	0	130	10	10	186	15	10
6	Grosse Point	Peter Shannon	108	15	0	146	2	9	254	17	9
7	Mackie's Point	Alexander McDonald	43	15	0	37	13	3	81	8	3
8	Cherry Island	E. S. Johnson	108	15	0	198	7	6	307	2	6
9	Lancaster Pier	Thomas Hill	83	15	0	458	4	3	541	19	3
10	Cole's Shoal	Richard Elliott	18	15	0	41	11	2	60	6	2
11	Grenadier's Island	Joseph Austen	17	10	0	44	11	0	62	1	0
12	Fiddler's Elbow Island	John Landon	35	0	0	23	18	8	58	18	8
13	Lindoe Island	William Landon	12	10	0	41	17	10	54	7	10
14	Gananoque Narrows	Cornelius Cook	37	7	0	46	0	10	83	7	10
15	Jack Straw Shoal	James McDonald									
16	Spectacle Shoal	Hiram Cook	33	13	4	67	17	2	101	10	6
17	Red Horse Rock	Daniel Bryant,									
18	Burnt Island	Joseph Mervin	17	10	0	19	11	11	37	1	11
19	Nine Mile Point	John Dunlop	108	15	0	121	12	10	230	7	10
20	False Ducks	Joseph Swetman	127	10	0	184	17	10	312	7	10
21	Point Peter, Long Point	W. A. Palin	108	15	0	133	6	4	242	1	4
21½	Scotch Bonnet	John Giroux	90	18	6	199	13	6	290	12	0
22	Presqu' Isle	Wm. Swetman, Senr	81	5	0	329	10	6	473	5	6
22½	Presqu' 2 Range Light	Wm. Swetman, Jr	62	10	0						
23	Gull Island	George Roddick	81	11	8	273	10	0	355	2	0
24	Gibraltar Point	George Durnan	108	15	0	240	0	8	348	15	8
25	Burlington Bay	John Davidson	100	0	0	83	8	9	183	8	9
26	Port Dalhousie	Jonathan Woodall	81	5	0	140	10	6	221	15	6
27	Port Colborne	James Fortier	81	5	0	196	13	0	277	18	0
28	Mohawk Island	John Burgess	108	15	0	92	13	10	201	8	10
29	Port Maitland	Chas. D. Parnell	117	10	0	130	12	5	248	2	5
30	Port Dover	Wm. Fifield	....			25	1	6	25	1	6
31	Long Point	Henry Clarke	135	18	9	225	1	6	361	0	3
32	Long Point Light Ship	Peter Baikie	127	2	6	111	18	5	239	0	11
33	Port Burwell	Alex. Sutherland	80	0	0	70	0	3	150	0	3
34	Port Stanley	Matthew Child	34	5	5	25	2	6	59	7	11
35	Pelée Island	Jas. Cummins	132	13	6	816	9	0	949	2	6
36	Bois Blanc	Jas. Hackett	135	17	10	173	11	5	309	9	3
37	River Thames	Thomas Cartier	111	0	0	103	3	0	214	3	0
38	Goderich	Humphrey Fidler	108	8	9	122	5	8	230	14	5
39	Chantrey Island	Robert Mills	127	19	11	99	10	8	227	9	11
40	Isle of Coves	John Alanson	....			....			....		
41	Nottawasaga Island	Archd. McDougall	148	11	10	....			148	11	10
41½	Christian Island	Wm. Hoare	49	16	10	97	6	2	147	3	0

No. 3—(*Continued.*)

No.	Name of Light.	Name of Keeper.	Amount of Salary paid. £	s.	d.	Supplies and Repairs. £	s.	d.	Total. £	s.	d.
	Below Quebec.										
42	Belle Isle	D. Vaughan	169	17	6	358	10	4	575	14	1
		J. Bt. Baron, Assistant	47	6	8						
43	Anticosti	D Ballantyne	113	1	8	266	13	1	433	18	1
		John Harvey, Assistant	54	3	4						
44	Forteau Bay	John Blancpied	83	6	8	304	11	10	466	16	11
		A. Dussault, Assistant	78	18	5						
45	Cap Rosier	Eugene Trudeau	113	1	8	263	11	1	468	4	0
		L. Lemieux, Assistant	91	11	3						
	Piers below Quebec					350	11	0	350	11	0
			3996	12	2	7867	5	2	11863	17	4
	Management, travelling expenses and freight of supplies, &c.					2424	5	10	2424	5	10
			3996	12	2	10291	11	0	14288	8	2
	Less—this amount, supplies taken from store					279	18	11	279	18	11
			3906	12	2	10011	17	1	14008	9	3
	Expenditure on Erection.										
	Light Houses below Quebec								16324	2	10
	Light House Apparatus below Quebec								2810	10	10
	Light Houses (new) below Quebec								3858	10	0
	Point Pelée Light House								8733	15	0
	Snake Island Light House								663	5	7
	Bay of Quinté Light House								19	4	6
	Light Houses, Lake Huron								9191	8	11
	Light House Apparatus, Lake Huron								8251	5	2
		£	3996	12	2	10011	17	1	63860	12	1

* * *

No. 4.

Statement of Amounts paid on awards for damages on each work since date of last Report,—also, amounts paid to Arbitrators or Commissioners, for services and expenses, up to 1st January, 1858.

	£ s. d.	£ s. d.
Lachine Canal	150 0 0	
Beauharnois Canal	787 17 7	
Cornwall Canal	1000 0 0	
St. Ours Canal	37 10 0	
Welland Canal	648 13 9	
		2624 1 4
John Rose	45 0 0	
A. B. Sirois	10 0 0	
C. J. Dunlop	54 2 0	
L. W. Marchand	50 0 0	
Other expenses	31 6 7	
		190 8 7
Arbitrators for Upper Canada.		
A. N. Striker	12 0 0	
Joseph Bates	12 0 0	
		24 0 0
Arbitrators for Lower Canada.		
James Sommerville	428 0 0	
P. T. Masson	442 0 0	
Edward Quinn	446 10 0	
T. C. De Lorimier, Clerk	175 0 0	
		1491 10 0
£		4329 19 11

N. B.—The above amounts paid on Canals are included in Statement No. 1,—and the total amount in Statement No. 2, under arbitrations.

No. 5.

Statement shewing the total amount expended by the Department of Public Works during the year 1857, as detailed in the foregoing statements, numbered 1, 2 and 3.

	Repairs and Maintenance.	Construction.	Total.
	£ s. d.	£ s. d.	£ s. d.
Statement No. 1	67998 19 8	77456 11 9	145455 11 5
Do No. 2	73525 0 11	108421 0 9	181946 1 8
Do No. 3	14003 9 3	....	14008 9 3
	155,532 9 10	185,877 12 6	341,410 2 4

APPENDIX

TO THE

REPORT OF THE COMMISSIONERS OF PUBLIC WORKS.

A. Report of Wm. Scott, C. E., on the works of the new Light House, Point au Pellée.

B. Report of John Page, Chief Engineer Public Works, on the examination for sites for piers west end of Lake Erie.

C. Report of Wm. Scott, on the present state, &c., of the Rondeau Harbour.

D. Report of Edward Browne, C. E., on the works of the back waters of the Newcastle District.

E. Report of H. Merrill, on the works of the River Ottawa.

F. Report of H. Merrill, on the works of the River St. Maurice and the Vermillion River.

G. Report of T. A. Begly, Secretary Public Works, on the Establishments on the River St. Maurice, &c.

H. Statement relative to the Light Houses, &c., lately constructed on Belle-Isle and the Gulf of St. Lawrence.

I. Report of G. F. Baillargé, C. E., on the Matapedia Road.

K. Report of P. Bouchard, on the Mal Baie and Grand Baie Road.

L. Report of T. E. Norman, C. E., on the Survey of the Islands and Water Power of the Chats Rapids, River Ottawa.

APPENDIX.

A.

REPORT ON THE FOUNDATION WORKS OF POINT PELÉE LIGHT HOUSE.

On the 28th of January, 1856, the Assistant Commissioner of Public Works, the Hon. H. H. Killaly, fully explained to me the efforts that had been made for the last four years to establish a Light House on Point Pelée, at the south end of the shoal, about four miles from land, and at the same time engaged me to undertake that work; by the 7th of August I had examined the remains of the old work, made my surveys, plans and report, and received instructions to proceed with the work.

My plan, which I believe to be original, both in form and in the mode of construction, consisted of building a large octagonal caisson, 65 feet wide across the base, 30 feet high, and 50 feet across the top, consisting of whole timbers of the best white oak, strongly framed together and bolted with the best wrought Lake Superior iron, having the whole of the bracing timbers and fastenings inside, so as to present an even or fair surface to the roll of the waves, instead of placing the outside timbers horizontal as in all other structures of this kind, I had them placed vertically, so that the lower ends would rest on the ground in deep quiescent water, while the upper end received the shock of the waves, thus opposing the full section of the timber instead of an artificial joining, which would have been the case had the caisson been framed with horizontal layers. The slope of those timbers inward is 7½ feet in the height of 30 feet, or battering 1 foot in 4 feet. The whole weighed before launching over 380 tons. The octagonal form was used as being well adapted for strong framing, while at the same time it presented an equal line of resistance nearly in every direction. The batter or slope given to the upright timbers was for the considerations, viz:

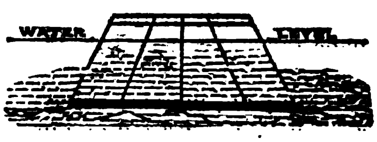
1st. It allowed a larger base with less material, giving greater stability to the whole structure, having both area and weight at bottom in the proportion of five to three.

2nd. In opposing a regular sloping front on all sides to the action of the waves, so that the higher they rolled, the smaller the surface became for them to act on, consequently the back water at a certain height would operate against their rising to a great height on the structure.

3rd. To prevent the ice from piling on the structure at the time of its breaking up, which is always occasioned by high winds acting on the water, and forcing the ice up by hydraulic pressure. On this structure the higher the ice is raised, the more easily it detaches itself from the structure, as every foot of rise will enlarge the opening three inches all round.

The providing of timber, bolts, and building the office and the shanties for the workmen occupied the time from the 7th of August until the end of September, 1856. So that the foundation to build the caisson on was not begun until the 25th day of September, 1856, and the whole including the ways 600 feet into the lake was completed and ready for launching by the 4th day of July, 1857.

It was finally launched on Friday evening, 24th of July, and towed to Amhersburgh, where 600 tons of masonry comprised of building stone and hydraulic lime mortar, was laid in the bottom, and on Saturday, the 8th of August, exactly one year from the approval of plans, &c., it was towed to its position about four miles south of Point Pelée, and sunk into its place, being in 19 feet of water. This was done by admitting the water at the top of the masonry from a valve contrived in the bottom, and which was again closed when it was perfectly settled on the ground, as soon as sufficient stone was received on board to keep it in position, the whole of the water was pumped clean out, and the masonry recommenced from that already laid and carried up in regular courses to 8 feet above the water or within 3 feet of the top of the caisson. Every course was regularly grouted with hydraulic mortar, made thin enough to be raked and floated into every joint, so that the interior of the caisson is one solid pier of masonry containing 2,025 cubic yards forming the frustrum of a pyramid of eight regular sides, 63 feet across the base, 27 feet high, and 50 feet across the top, and weighing over 4,600 tons, which, with the caisson will make the whole foundation about 5,000 tons weight while it only displaces water to the amount of 1,443 tons. In addition to its own weight, the ground on the outside, all round and up the sides to the height of nine or ten feet, is loaded with stones, as shewn in the sketch in the margin, to the amount of some 3,000 tons or more. This was deemed necessary from the strong current which sets here at times (nearly five miles per hour), and which might, without such preventative, act on the bottom, but will now form a nucleus for the collection of sand from the neighbouring reef.



The masonry is not carried up the full height of the caisson, three feet being left until the kind of structure to be erected for the light has been fully determined on, as it will then have to be levelled in accordance therewith, The works were closed for the season on the 31st of October, 1857, but the temporary light which was begun on the 12th of August was kept up until the 28th day of November, 1857, when the navigation closed. The erection of this light, which could be seen eight or ten miles, gave universal satisfaction to those navigating this lake, and I have received many communications, both verbally and by letter, from the captains of steamers and propellers, expressing their thanks for the security it already afforded, and the distance they saved by it, as they nearly all pass within fifty yards to the south of the light.

One of those incidents, which sometimes are brought about by the hand of God, to illustrate His overruling providence, happened the night before the light keepers closed up for the season. Captain Wye, of Mersea, with a crew of five persons in his scow, had left some of the ports on the American side of the lake, and was overtaken by that terrible storm of snow and cold weather, which took place in the latter part of November. They were caught in the ice, which nearly cut their scow in pieces, and for two or three days were drifted about at the mercy of the winds, without power to help themselves. On the evening of the 27th of November, they drifted near the caisson, when they patched up an old skiff with some boards, and made their way to the foundation, where they passed the night in comfort, and next day returned with the Light-keepers to shore; but for this being in their path they would in all probability have perished on the lake.

I am happy to say that this foundation fully answers the end designed. It appears to be as stable as the rock itself, and in the most severe storms the waters divide and pass round it, so that the highest waves do not break over it, although the height is only 11 feet above the water, and it stands on the broad waste a mere speck.

The many difficulties which had to be encountered in the prosecution and erection of this work, has already been fully laid before you in my letters of the 10th and 18th September, 1857.

I have appended an abstract of the different heads of expenditure up to the 31st Dec., 1857, and I believe in comparison you will find that for the magnitude and solidity of this work, executed in an isolated and most dangerous position, it will compare favorably in cost with any thing ever erected on this continent.

The foundation, unless faced with large stone from the water's edge, may therefore be said to be complete, and there will only remain the Tower and Keeper's house to proceed with in the Spring, for these I will in a few days present a plan and estimate.

It is admitted by all who navigate the western waters that this is the most important light on the whole chain of lakes. I should therefore recommend that the light be 60 feet at least above the water, and not less than a second class revolving light placed therein, if it could be distinguished as a bright red light similar to "Tuscar" in the old country, so much the better.

I have the honor to be,
Sir,
Your most obedient Servant,
WILLIAM SCOTT,
Engineer.

Thomas A. Begly, Esq.,
Secretary,
Dept. Public Works.
12th Jan., 1858.

(See Plan of Light House annexed.)

POINT PELÉE LIGHT-HOUSE FOUNDATION.

Abstract of the different heads of expenditure, building, material, launching and filling.

Head of Expenditure.	Quantity.	Description of Articles and Expenditure.	Average price currency.	Amount.	Total
			£ s. d.	£ s. d.	£ s. d.
Timber	21,500 cubic feet	Squared white oak timber, best quality, delivered per ft.	0 0 9¾	860 0 0	
	80,000 feet	Board measure, best white oak plank and other scantling per 1000	3 15 0	320 0 0	
	312 piles	Average 26 ft. long 15 in. diameter each	0 7 0	109 4 0	1289 4 0
Iron Works	32,044 lbs.	Wrought iron in bolts, nuts, spikes, screws, clamps, &c., per lb.	0 0 6¼	841 3 1	
	9,528 lbs.	Cast iron rollers turned, winches, &c., all fitted, per lb.	0 0 5½	220 1 10	1061 4 11
Wages		Labour building caisson, pile driving and ways		2239 3 8	
Wages and material		Labour and material, caulking caisson		240 0 0	
Wages		Labour launching caisson		483 19 8	
Material		Ropes, chains, blocks, and various tackling		165 13 9	
Material		Contingencies, including tools, cartage, pumps, horse hire, boats, lamps, oil, and various matters		271 18 10	3400 15 11
Building Materials	532 toise	Building stone for filling caisson and round outside, including loading	1 15 0	912 2 3	
	840 barrels	Building lime and handling	0 3 9	161 17 0	
	5,550 barrels	Building sand and handling		145 18 0	1219 17 3
Wages	2,268 cubic yards 260 toise dry stone	in masonry, round outside, } Labour, mixing mortar, laying, &c.		1253 19 11	
	Do	Provisions for men on caisson, 3 months		243 1 6	
Carrying and Towing		Steamboat and scow hire carrying material and towing		2270 4 6	3767 5 11
		Total expenditure		£	10738 8 0

WILLIAM SCOTT,
Engineer P. P. L. House.

B.

TORONTO, 26th Oct., 1857.

SIR,—On receiving your letter of the 8th instant, inclosing for my guidance a letter of instructions formerly given to the late Mr. J. F. McDonald, relating to certain piers or wharves proposed to be built towards the western end of Lake Erie, together with other documents connected therewith, I immediately made the necessary arrangements for proceeding to the places referred to, and, on arriving there, made such an examination of the coast as enables me to submit the following report.

By reference to the accompanying map, it will be seen that the shore of the lake, from a point in the township of Colchester to about the 6th range of lots in the township of Mersea, trends north-easterly, thence suddenly takes a south-easterly direction along the shore of Point Pelée, forming between it and Cedar Creek, in the township of Gosfield, what is termed Pigeon Bay. This bay, although large, is comparatively shoal and exposed to all winds from the West round to South (between these points the wind is said to prevail, on an average, seven months in the year), which greatly endangers vessels approaching or lying near the shore; but, as the bottom consists of clay, the anchorage is good, so that those provided with good ground tackling, when in the bay, can generally ride safely through a moderate gale, if at proper distance from the beach.

Still the bay affords no sort of shelter whatever; neither, in my opinion, is there any place on this part of the coast where it is possible to form a harbor at any thing like a moderate expense, if at all, that could in even the most remote degree be considered "available as" an "asylum harbor for the trade generally."

The examination further shows, that strictly there is no place on the coast possesses or can claim, other than for local purposes, any special advantage over another for the construction of a landing pier; all appears to be nearly if not alike exposed to the action of the sea and wind, with shoal water extending outwards a considerable distance from shore, while at all or any place that could be selected, any structure formed must be carried out to nearly an equal extent, to obtain a like depth of water; and must be equally substantially built to withstand the pressure and action of the ice, when it breaks up in spring, and its influence in winter, resulting from the rise and fall of the lake during high winds.

My attention was, however, directed particularly to three different places by certain prominent persons residing in the respective neighborhood of each.

First adjoining the village of Kingsville, about the centre of the southern part of the township of Gosfield, one of the places surveyed by the late M. McDonald, a plan of which accompanied my letter of instructions. The plan conveys a tolerably fair idea of the locality; but the place marked on it as Kingsville Harbor is nothing more than the beach of the lake, on which the water is generally shoaler than on the bar outside, and, on checking the measurements and soundings, it was found that the latter shows a depth of 8 inches more water than is at present over the same places. This is, however, doubtless, due to the fall of the lake since the soundings were taken.

Still I must dissent from a note on the plan having reference to a channel stated to have been formed by Cedar Creek. The so-called channel being common to nearly all parts of the coast, at a distance of between 2 and 300 feet out from the shore, which, if I mistake not, is only a lower part of the bar that runs parrelled with the shore, on which, at the distance above stated, the reaction of the sea, or what is termed the 'under tow,' prevents the sand and shingle from accumulating to a like height as it does further out in the lake. At all events there is no reason to suppose that Cedar Creek has the slightest influence in either forming or maintaining it, the creek being a dull sluggish stream unequal to keeping its own shoal outlet open in summer, beyond a width of from 7 to 8 feet, through which the water of the lake, in a moderate gale, passes inland; while occasionally the mouth of the creek, I was informed, is so completely blocked up that teams, without inconvenience, pass along the beach, and directly opposite it the bar is fully three-fourths of a mile wide, on which there is only from 2 to 5½ feet water; in fact the bar is wider and the water shoaler at and for a considerable distance below Cedar Creek than elsewhere.

Towards Kingsville the bar diminishes in width, and about one-fifth of a mile below the main part of the village it in a great measure disappears for a short distance; still, even at that place, the water deepens outwards so slowly that at a distance of 800 feet from the shore there is barely 12 feet water.

It is, however, said by the inhabitants, "that some years ago several vessels wintered safely under the bar, and that vessels in calm weather occasionally land and receive cargo there."

They further urge, as a claim for consideration in the location of a pier there, that Kingsville is a port of entry, while at present goods are landed indiscriminately on the coast, which increases the labors of the Collector of Customs, and, as they allege, admits of great facilities for smuggling. That, for want of a landing pier, goods intended for the port and country adjoining are frequently landed at Amherstburg or Windsor, a distance of 25 and 35 miles respectively, which entails upon importers, and of course ultimately consumers, a heavy expense for land carriage. These and other matters of a local nature are set forth as reasons why Kingsville should be selected as a place where a landing pier should be built; while some strive to make themselves and others believe that a harbour of refuge could easily be made there, stating that the bar has already all but formed one side of it, and dredging would form the basin to any extent, forgetting, however, that the same cause would still be at work fitting it up, and, from the exposed nature of the coast, the means of access or egress to sailing vessels could be but little if any improved.

But, apart from other considerations than those of a strictly local nature, which are all that can with the slightest show of reason be brought forward, it is believed that a pier if built there would be of advantage to the village and neighborhood, although none whatever to the trade generally.

The position and place represented on the plan is, I believe, the best that can be selected in the vicinity; but when built as it will be what may be termed a "calm water" landing pier, only there appears to be no necessity of carrying it out to a greater depth than to admit of vessels of moderate draught lying on either side towards its outer end; it is therefore assumed that a pier 750 feet in length would fully answer all purposes likely to be required, and allowing the lake to fall 18 inches below its present height, the outer 130 feet would still be in from 9½ to 10 feet water.

The first 200 feet next the shore might be made 18 feet wide, the next 200 feet, 22 feet wide, the third 200 feet, 27 feet wide, and the remainder 30 feet wide; the increase of width in each case to be made gradually, that is to say in 25 or 30 feet length of pier.

This would cost about £6,500. The pier could be extended out from the shore a distance of 230 lineal feet for the sum of £1,500. The extreme end in that case would be in about 7 feet 3 inches water at the present height of the Lake.

The next place examined is immediately west of Pointe Pelée, near the inner angle of the bay, and for some distance on both sides of the line between lots 6 and 7 in the township of Mersea, (opposite what is known as "Risk's Farm.")

The accompanying sketch, although giving only an imperfect idea of the place, still shews, as previously stated, that it is entirely open to such winds and storms as are of most frequent occurrence and greatest violence on this part of the coast, a difficulty equally impossible to overcome, as to construct a harbour there that would be accessible for one day out of ten, taking the whole year round.

The soundings show that, at a distance of 250 feet out from the shore, there is from a foot to 18 inches more water than on the bar outside, and at a distance of from 500 to 550 feet out, the water is, on an avarage, 10 feet deep, and from 750 to 800 feet out, the mean depth is 12 feet. At about one eighth of a mile to the westward of the line above referred to, the bar is about 50 feet narrower than at other places.

The inhabitants use the following arguments in favour of a landing pier at this place, viz.:

It is the only water frontage in the township where they consider it possible to build a pier, and its construction would accommodate the whole inhabitants of the township, as well as those in the eastern part of Gosfield, both of which places export large quantities of timber, staves, potash, tobacco, &c., and import groceries and other necessary articles to a considerable extent.

That the ice is not so liable to jam in that part of the bay as at other places, as it generally breaks off from Bell's Point (about a mile to the westward) at some distance out from shore, and beyond the place where the pier would be. That vessels frequenting the place can anchor outside safely, &c.

All of which are, doubtless, more or less correct, still the operations and effects of the ice are much more likely to result from the direction and power of the wind at the time it breaks up, than to be influenced by Bell's Point, and although vessels in a moderate gale may anchor outside safely, the question naturally arises, how is a sailing vessel to get out from the wharf during a blow from west in any course bound to south, it being an admitted, or at all events a well known fact, she cannot, in that case, lie alongside of it.

In reference to the particular site for a wharf in this neighbourhood, it may fairly be said there is no choice, except, that about 750 feet west of the road alluded to, the water is slightly deeper, this place has therefore been marked on the sketch as the proposed site; where a wharf if carried a like distance from shore as proposed in the case of Kingsville, about the same depth of water would be reached at nearly the same expense, with this exception, that after an expenditure of £1,500 here, the end of the pier would still be within the inner side of the bar.

The third and last place to which my attention was requested and given, was at the village of Union, which is, I believe, on lot number 9, in Gosfield Township, and about midway between the two places first examined. The description already given of the unsheltered nature of the coast is equally applicable to this place, and the depth of water bar, &c., at the respective distances out from shore correspond, as nearly as may be, with those stated to be opposite Risk's farm in Mersea.

The bank of the lake is, however, 40 feet high. The arguments used by those in favour of a landing wharf here are as follows, viz:

It is about the centre of Pigeon Bay, and near the line between the townships of Mersea and Gosfield. That it is situated at the head of Sandwich street, and the principal roads of the township lead to the village. That a wharf there could be built cheaper (stone being convenient) than at any of the other places, and that it would also accomodate the inhabitants of both townships better. That this part of Gosfield is settled back to the 7th concession, and raises more wheat than any other part of the township; while in the rear of Kingsville there is an extensive swamp of course unsettled, &c.

That the ice never jams opposite the village, and vessels on leaving the wharf would have a better offing than they could have from a pier opposite Risk's farm, &c.

Taking these reasons for the location of a pier at this place, in connection with those advanced in favour of the other places it will be seen that all are of a strictly local nature. And it may again be said there is scarcely any choice as to position, and little or no difference as to the expense of construction, and certainly no reason whatever to suppose that either would, or by any possibility could, be of any service to the navigation generally.

Having thus endeavoured to place the matter fairly before the Commissioners, I have only further to add, that if those works are to be undertaken, in whole or in part, it might be well that an early decision was arrived at, and the particular place or places fixed on, winter being the best time for preparing materials for such a class of works.

I have the honor to be,
Sir,
Your obedient servant,
JOHN PAGE,
Engineer of Public Works

Thomas A. Begly, Esq.,
Secretary of Public Works.

C.

Windsor, C. W., 30th December, 1857.

Sir,—In accordance with your letter of the 10th instant, (22879) enclosing the Report of the Chief Engineer on the Rondeau Harbour, I lost no time in proceeding to its inspection. I found that the dilapidations of those works and the landing pier were now much more extensive than the description given two years ago, and that the whole were fast going to ruin from the combined effects of the undermining current, age, and neglect, hastened by the never ceasing action of the waves on its more exposed parts, which, from the decay in some of the timbers of the cribs, is likely to make short work.

As it would be impossible to give a clear idea of the settlement of the piers inwards, and the many causes of dilapidation by a mere written description, I have made a plan and cross sections to accompany this report, as well as to shew a new feature in the element of destruction, which arises from the shifting of the western opening.

The entrance piers have settled inwards towards the channel, which is now scoured out to the uniform depth of twenty-one feet in the centre, and from fifteen to eighteen feet immediately close to the cribs. This, without doubt, has been the primary cause of the dilapidation, as I understand the original depth of the channel and works were about ten feet under the the water.

The state of the western pier, which is decidedly the most advanced in decay, is as follows, viz: About fifty feet of the northern end is entirely gone, and the next fifty feet is so turned over, that it forms a curve inward and has the whole front under water three or four feet, (see plan A.) The next eighty or ninety feet being the part that abuts on the breakwater is scarcely moved out of its place, for the next 450 feet the angle of inclination inward varies from sixteen to thirty-six degrees, having the greater part of the front under water, some to the depth of six feet, as represented by the cross sections on plan marked B. The south of this pier had a return of more than double width, which kept this end from canting inward, but the southern end has been undermined and broken up by the waves, and has lost about thirty feet from its length, the greater part of the top planking of this pier is either gone altogether or very much rotted, and the whole presents a most distorted and ruined appearance, and is not, in my opinion, capable of being repaired in such a manner as to be of any permanence.

The western breakwater has been broken up on top, and washed level with the sand, probably eighteen inches above the water level. About 725 feet of it still remains entire, but the western end is gradually breaking up, and has already lost 100 feet of its length, (see plan marked C).

The eastern pier has apparently lost several feet from its northern end, which is gradually sinking and breaking up, and the whole length, with the exception of about 100 feet abutting on the break water, is inclined inwards from 10 to 32 degrees, and about 100 feet near the southern end has the front entirely under water, the plank off and fast breaking up (see portion on plan, marked D). As far as I could ascertain, 100 feet of the south end of this pier is entirely swept away. This includes the pier on which the light house stood, and the result of my sounding over the spot gave a depth of from six to ten feet of water.

The light house pier did not move until relieved of the superincumbent weight of the tower, and now there is not a vestige of it to be seen.

The eastern breakwater is entire and nearly as good as the day it was put down, and seems to have completely answered the purposes for which it was intended.

The light house was burned down last spring, I believe, accidentally. The facts, as near as I could learn, were, that two men out fishing had gone into the tower for shelter from the weather; they made a fire on the floor and fell asleep, and were wakened up to find the tower on fire, from which they made their escape as quickly as possible. With the exception of a few large timbers, it was burned to the water's edge. There had not been any light in it for a period of six years, and it was in a very dilapidated state, without doors or windows, and the whole of the glass of the lantern broken.

I will now draw attention to a matter that must form an important consideration in any future repairs or works to improve the entrance piers of this harbour, that is the shifting of the western opening to the eastward, during the last ten years, for upwards of half a mile, (see the enlarged map attached to plan), and has only been stayed in its present position by the obstruction offered to its further progress by the western breakwater. As this obstruction will be gradually overcome, (it is only a question of time) it will make its way to the west pier, and it becomes a question of very grave moment whether the spit of sand and shoal formed on its eastern side may not overlap and stop up the approach to the artificial entrance on the north side. There is, however, at present a constant current either flowing into or from the Rondeau.

From this cause, before any permanent improvement could be made, I consider that the west pier should be altogether renewed and placed more to the westward so as to leave the opening between the piers about 400 feet wide, or as much width as would leave the united sections of the waters of the artificial cut, and the western opening an exit, having 15 feet as its maximum depth; the western opening could then be closed by a double row of piles, and the sand would soon form round them and effectually close it for ever.

The east pier and breakwater, in my judgment, could not be better placed, and this pier could be repaired by facing inside and out by piles well tied together and capped six or seven feet above the water, the whole to be filled up with beaten or water concrete to that level, or planked over on the top. The foundation of the light house should be piled, the piles to be sawn off one foot bolow the level of the water and built upon by heavy blocks of stone from the Islands or Amherstburgh quarries, until raised seven feet above the water. The tower and other buildings could then be erected with the ordinary building stone from Amherstburgh or Kingston.

The west pier could be formed of double rows of piles well tied together and filled in with the stone in the present pier to the level of the water, and planked at the height of seven feet above the water.

I fully agree with Mr. Page that both from nature and former improvements the Rondeau harbor has advantages unequalled by any place on either shore of Lake Erie, for affording shelter to vessels in distress and doing a large trade, if the entrance was only permanently improved and a good light-house erected to point out the entrance. It should also be borne in mind that the County of Kent is increasing vastly in population and wealth from her agricultural products alone, and that the whole of this produce (nearly) has now to be shipped from Chatham, entailing on the settlers of the southern Townships a long land journey, and a smaller price for their produce, as it has to be carried 150 miles further by water from Chatham than if shipped from the Rondeau.

The wharf at Shrewsbury on the northern side of the Eau is in such bad condition that it cannot be used for teams, and as there has been 600 feet or so carried off from the outer end, vessels cannot approach it drawing more than seven feet of water, some 1,100 feet or more towards the shore is only a very temporary affair and level with the water, the ice having broken through and carried most of it away, and repaired by the people for their own convenience. Should the remnants survive the ice of next spring, it cannot be used, as the whole is so ricketty and out of the perpendicular that very little weight overturns the piles and breaks through. A new wharf seven feet above the water and well tied together would require to be built before trade to any extent could be carried on there.

Should this be done, a large grain store-house should be built, and it would pay a large interest on the money expended.

Below I have appended an estimate of about the probable cost of making the whole in an efficient and permanent state, but a Light-house and a wharf are the most required, as with these the trade of the port could be resumed, while the other matters are being carried through.

I have the honor to be,
Sir,
Your most obedient Servant,
WILLIAM SCOTT, C. E.

To Thomas A. Begly, Esq.,
Secretary Public Works.

RONDEAU HARBOR.

Estimate *of the probable cost to place the entrance in a proper state, build light-house, and make a new landing wharf, and close up the western opening:*

Removing west pier and part of breakwater...............	£700	0	0
Building 700 feet of west pier, piled and filled with stones (from present pier) to the water level	1800	0	0

Repairing and making permanent the east pier to the length of 700 feet, filled with concrete or beaten to 7 feet above water	£2300	0	0
Light-house pier, dwellings, and tower	2200	0	0
Extension of west breakwater by piles across western opening	1500	0	0
New wharf	4500	0	0
Store house	500	0	0
Total	£13,500	0	0

WILLIAM SCOTT, C. E.

31st December, 1857.

D.

PORT HOPE,
February 18th, 1858.

SIR,—I have the honour to submit the following report for the information of the Commissioners, on the state of the works now in progress of construction at Bobcaygean and Buckhorn rapids, and the improvements made in the navigation of the River Scugog, below Lindsay, by the deepening and straightening of the Channel, and other matters connected with the navigation of those waters.

All the works are in a very satisfactory state, and I shall enumerate in as concise a manner as possible the different new improvements which have been made in the navigation, and the vast advantages which the back country must derive from them.

BOBCAYGEAN WORKS.

The masonry both of the lock and the grist and saw mill flumes is completed, and owing to the high state of the water a good deal of difficulty had to be contended with. The masons being obliged to suspend operations on the 25th November, 1856, and could not resume work again until the 10th of September, 1857. The lock gates are in their places and are perfectly water-tight, both at the hollow quoins and at the point of mitre. The conduit of canal is also finished, a portion of which, about 500 feet long, is timbered and planked on both sides, and the bottom in many places being full of fissures has been filled in with concrete and afterwards double panked and well spiked down, which makes it perfectly staunch. The remaining portion, about 400 feet in length, is formed of natural banks, the bottom and sides of which are well puddled, which makes it perfectly secure. The dams have undergone thorough repairs, having been all planked with 3 in. plank, well spiked down and backed up with puddle and afterwards loaded down with gravel, which makes them perfectly staunch. They were commenced on the 24th of August, 1857, and in doing so much additional expense has been unavoidably incurred, as before the work could be commenced, coffer dams had to be built at much expense and inconvenience to the contractor, owing to the high state of the water and not wishing to lower it too suddenly during the summer months, as a good deal of uneasiness seemed to prevail amongst the inhabitants in the vicinity of those waters when they heard the waters were to be lowered, much sickness being apprehended to arise from the decayed vegetable matter that would be exposed to the sun. Another objection raised to lowering the water too early in the season was on account of its affecting the navigation. The consequence was, that this portion of the work was put off to the last moment in expectation of the water falling, but as it continued high all the season, coffer damming had to be resorted to as a last resource, and without doing so they could not be repaired this season. Timbers for new piers at the slide are delivered. The old stone pier being almost useless owing to the water finding its way under it through fissures in the rock some distance above the dam. To meet this difficulty it will be necessary to construct a short dam 120 feet in length (below the old pier) to connect with the new wooden one, and the main land. The rock here being much more solid than it is above, the slide can be made quite staunch. This dam will throw back the water, and will not be attended with much additional expense to what was already contemplated.

The new swing bridge built the year before last has been painted this last season, and all obstructions in the navigation of the river below the lock have been removed, and a few days work in the spring, trimming up the tow path and building the new piers at the slide of the dam will complete the navigation at Bobcaygeau.

BUCKHORN RAPIDS.

The repairs of the dam were fully completed the year before last, and part of the bridge built anew. The remaining portion of the old bridge, about 500 feet long, has been removed this winter, and the materials for the new one are nearly all delivered, and carpenters are busily engaged framing. I expect to see the whole finished by the 1st of March. The length of the bridge when completed will be 642 feet.

SCUGOG RIVER.

A good deal of dredging has been effected last summer in the Scugog river below Lindoe, in addition to that done last year, which has improved the navigation of that river very materially, having done away with a great many crooked bends, which were very awkward for vessels passing up and down. There remains but one point of land to be taken off, about 100 feet in length, to complete the water communication between Sturgeon Lake and Lindsay, and this will be dredged next season.

To complete the navigation I should suggest the removal of some boulders which impede the navigation at Bobcaygean, about half a mile above the dam, and at Buckhorn in the narrows about three miles above the bridge. Besides the removal of boulders at the latter place, I should recommend the buoying of the channel at two points where large and dangerous rocks obstruct the passage of steamers, (and I might add of small boats) as during the summer season they are almost exposed to view. The cost of which, and the removal of boulders in both places, I estimate at $950.

The booms at Buckhorn which were built where the dam was repaired the year before last, have been carried away and broken up, owing, I understand, to the negligence of raftsmen allowing seven thousand saw logs to run against them, without taking the necessary precaution of first removing the stop logs in the slide. The current here being very rapid, and to guard against a similar accident occurring again, I should recommend the building of two small wooden piers triangular shaped and filled in with stone, to which I propose to fasten the booms by iron bolts. Those piers being placed equi-distant between the slide and shore, would tend towards strengthening the booms very materially. The former booms were 740 feet in length, of which only 140 feet can be made available, as it would cost more to collect them than would build a new one. I estimate the cost of repairing boom and building new piers at $1425.75.

The new lock at Lindsay is loudly called for, especially since the completion of the Port Hope, Lindsay and Beaverton Railway as far as that town, and the old wooden lock being quite impassable since last spring, owing to which and the shoal of rock extending from the lock some two thirds of a mile down the river, steamers from Fenelon Falls to Port Perry could not pass Lindsay and were obliged to transfer both their lumber and freight from one veesel to another, which was a great source of annoyance and inconvenience to the public, as well as being attended with much expense. Men are busily engaged getting out timber both for the foundation and gates of the new locks, and stonecutters are also employed in the quarry at Bobcaygean getting out and preparing the stone.

I would respectfully call the attention of the Commissioners to the necessity of building a few landing piers for the accommodatinn of vessels navigating those back lakes, they are very much wanting, and now more particularly since the new improvements in the Scugog river have been made and the new lock at Bobcaygean completed.

The privilege which proprietors of saw mills seem to have of throwing slabs and other rubbish into rivers and streams is a very great source of annoyance and very much complained of, (and I think very justly,) as in many instances those slabs have been known to scatter over a very large surface before sinking, and in many places they form snags, and in others they accumulate so fast in a short time as to cause very serious impediments in the navigation. I mention this with the hope that some measures may be adopted towards remedying this evil.

It is really surprising to see with what rapidity the country north of Bobcaygean is being settled since the commencement of the new lock at that place and the other improvements in connection with it, and although for some distance into the interior the land is not of the best description, yet almost all the lots in the new surveyed townships of Galway and Seymour are taken up, and new settlers are arriving every day. The land continues to improve the further back you go, and after getting back ten or twelve miles it will compare favourably with any land in the Province. The Government are now constructing a new line of road immediately north of Bobcaygean which is to extend about forty miles into the interior; fifteen miles are already completed, along which the country on each side begins to assume quite a settled appearance. Log houses are put up and clearings made here and there, where a short time since nothing was to be seen but a dense forest of trees.

I understand that the lumbermen complain of the slide at Buckhorn Rapids being too short, and are about petitioning the Commissioners to have it lengthened between two and three hundred feet so as to bring it into slack water.

In alluding to the proposed improvements in the navigation at Heeley's Falls and Crook's Rapids, on the River Trent, I have only to add that, in accordance with instructions received from the Honorable the Commissioners (last summer) to examine and report on the proposed works, and having done so, found that the appropriation of £1,000 was by no means adequate to meet those improvements, as besides the removal of boulders and other obstructions in the river, and staunching the dams at both those places, a new swing bridge is required. I should recommend the postponement of operations until more money is granted sufficient to meet those improvements.

The whole being respectfully submitted.

I have the honor to be,
Sir,
Your obedient servant,
EDWARD BROWNE, C. E.

Thos. A. Begly, Esq.,
Secretary, Public Works,
Toronto.

E.

OTTAWA, 31st December, 1857.

SIR,—In the month of August last I had the honour to submit to the Department a report on the state of the different works under my charge. This report stated the amount required for maintenance at each station.

The Commissioners having authorized the expenditure of the following sums at

	£	s.	d.
Joachim Slide	£150	0	0
Calumet do	422	12	0
Mountain do	150	0	0
High Falls do	401	10	0
Chats do	233	15	0
Booms at mouth of Madawaska	300	0	0
Hull Slide	128	0	0
Bytown Slide	75	0	0
Gatineau Boom	25	0	0
	£1885	17	0

I have to report, for their information, that the necessary repairs are being proceeded with, so that the slides booms, &c., will be ready for the coming spring business.

The Suspension Bridge at the Chaudière Falls is in good order, and will only require a coat of paint next spring; this the Commissioners have authorized. The other bridges at Ottawa are nearly new. Some of the road-way planking will have to be renewed.

New Works in course of Construction and Completed.

The hydraulic dams at the Chaudière Falls are finished, the Mill-owners and others interested are satisfied.

The slide and long pier dam at the Little Chaudière are now completed. These improvements are of much importance to lumbermen, as the distance over which single cribs run will be shortened, the running made safer, the expense lessened, and the timber passed with greater despatch.

The dams and slides, &c., on the Petewawa river are in a forward state. The contractors are carrying on the works with great energy; the whole will be ready for the coming season.

The Carillon works are progressing satisfactorily. The water has been very high this fall and winter, which has made it a matter of considerable difficulty to proceed with such works; however, the contractor has succeeded in laying 1,200 feet of the pier dam, in a very strong current. He has a strong force at work, with the requisite materials on the spot, so that I think he will be enabled to fulfil his contract.

The works in the little discharge from Lake St. John on the Saguenay River are also in a favorable state, the dams at the outlet of the lake being completed. The contractor has excavated the rock at the head of the long slide, and is now constructing the head gates and bulkhead for the same. He has procured nearly all the materials for the large dam at the head of Gagnon's rapids. The building of the dam will be commenced about the 25th of January. I shall leave Ottawa so as to be at the Saguenay at that date, with a view of assisting to lay the foundation, and giving the grade of the slide.

The Remous, booms and piers are progressing somewhat slowly, but the contractor is procuring material. Two of the piers are completed, and another in course of construction.

This is rather an important work, and I will endeavour to have it finished and ready for the spring lumber operations.

In submitting the above,

I have the honor to be,
Sir,
Your most obedient servant,
HORACE MERRILL,
Supt. of Ottawa Works.

T. A. Begly, Esq.,
Secretary of Public Works,
Toronto.

F.

Ottawa, 31st December, 1857.

Sir,—As requested by the Honorable the Commissioners of Public Works, I proceeded to the River St. Maurice, and have the honor to submit the following report on its improvements.

I left this city on the 12th day of October last, for Montreal, where I met Thomas A. Begly, Esq., Secretary of the Department, who had procured the necessary outfit of canoes, provisions, &c. That gentleman accompanied me to the St. Maurice, and made an inventory of plant and tools at each station, and also took memoranda to enable him to report on the staff employed at the various works on the river.

We started from the City of Three Rivers at 2 o'clock, p.m., the 14th, (Oct.,) and remained at Shawenegan for the night, having travelled about 21 miles. Arrived at the Piles, a distance of about 18 miles, on the 15th, after passing over the new road made by government, the land on each side of which is very fine. At this station we found the men and canoes in waiting. 16th. A gale blowing down the river, found it impossible to proceed that day. The fall of water at the Piles is about 10 feet, but no improvements are required for the running of saw logs or square timber. 17th. Wind still high. Left the Piles at 2 o'clock, p.m.; paddled about 6 miles, and pitched our tents. Snow fell during the night. 18th. Sunday, paddled to the mouth of the Mattawan. The St. Maurice from this station to the Piles runs swiftly—fine banks, no eddies, nor obstructions to the descent of timber. On the 19th, rain fell in the morning. Started at 11 o'clock, a.m., and paddled 12 miles against a strong current. The river presented the same appearance as before described, with no obstructions. 21st. Arrived at La Tuque. A steamer sails between the station and the Piles, a reach of about 75 miles, which shews that timber may be easily floated down. I examined La Tuque rapids, and found them about half a mile long, very rough and narrow, with jagged shores and violent eddies; the action of the water is such, that lumber drawn into the rapids is soon destroyed. At the foot of these rapids there are two eddies, out of one of which it is almost impossible to take timber. Near the lower end, on one side, a wing dam has been built, but the whole rapid is so rough, that I consider it would be a very difficult matter to make improvements in it. I am therefore of opinion, that the most effectual method of passing timber by La Tuque rapids, would be through a single stick slide extending from the upper end to a point below the eddies; the length of such a slide would be about three-quarters of a mile, and its cost about £6,000 cy., if built by contract. Immediately above the falls the river is broad, and presents no obstacle to the placing of booms for guiding the timber into the head of the slide. Above La Tuque rapids, and in the mouth of the Bostonais river, there is a large boom (made about three years ago) now lying, about 3,000 feet of it is 3 feet 9 in. in breadth, of treble timber, sound, and in good condition, while the remaining portion, about 500 feet in length, is of single timber. This boom was stretched above La Tuque, but for the last two years has not been used, nor do I see of what service it could be, unless the slide just suggested be constructed, as from the nature of the banks of the river, timber must necessarily of itself, pass into the rapid without the aid of any boom, and as the slide now suggested had not before been contemplated, I cannot see what the boom was made for.

Having been instructed by the Department to measure and ascertain the quantity of materials in the works at this station to guide me in forming an opinion as to what their original cost should have been, I now submit the following estimate, viz.:

White pine timber in dam and support, say, 23,974 cubic feet at 9d	£899	0	6
Planking 69,125 feet, B. M., at 70s	242	7	6
Stone filling, 3,659 cubic yards, at 4s	731	16	0
Timber in treble boom, 14,062½ cubic feet, at 9d	527	6	10½
Value of single boom, say	50	0	0
Value of iron spikes and chains	560	0	0
Total	£3010	10	10½

This amount is amply sufficient to pay for the construction of such work.

On the 23rd, at 2 o'clock, p.m., we left the head of La Tuque Rapids, paddled 5 miles, saw no obstructions, and camped for the night. 24th. Arrived at the mouth of the Vermillion River. The last 12 miles formed a continuous rapid, running in some places very swiftly, between high shores, and having no eddies. I never saw greater facilities for driving timber, and am certain that lumber could be driven from the mouth of the Vermillion to the Piles in one week.

On the 24th we left for the Iroquois Falls on the Vermillion River, about 4 miles from its mouth. This is a stream about the size of the Bonnechère, one of the tributaries of the Ottawa, and it is reported that it drains a country abounding in valuable white and red pine timber. The only formidable barrier to the safe descent of timber is the want of a slide at these falls; none has been manufactured above this place as yet. I carefully examined the ground in the immediate neighborhood, and found a natural channel admirably adapted for the site of a slide; its whole length is about 200 feet, depth 12 feet, and width 8 feet; one side is formed by perpendicular rock, and the other by rock nearly so. I observed a small quantity of water passing through this channel. The dams for raising the river will be about 240 feet in length, with an average height of about ten feet. Superior foundations can be laid as the bottom is of solid rock and the shores are bold. The required boom will be about 350 feet long, and will be easily located, as the inlet to the canal is 200 feet further up the river than the proposed dam. The height from which the water falls at this station is about 50 feet. The accompanying sketch shews the falls, and the relative positions of the dam and slide I have annexed an approximate estimate of the cost of these improvements, and should the Commissioners decide on carrying them out, I would strongly recommend the contract system as being the most economical.

There are some boulders between the Iroquois falls and the mouth of the Vermillion river, the blasting out of which and the construction of three small wing dams will cost about £600 cy.

Sunday, 25th October. Left Vermillion at 10 o'clock and reached La Tuque the same afternoon. Remained there over night.

26th. Left La Tuque this morning and arrived at Mattawan river the same day. 27th. Arrived at the Piles, where I remained over night.

As I had passed over land on my upward journey, I had not an opportunity of seeing that portion of the river between the Piles and the Grande Mère falls, and therefore, on the 28th, resolved on proceeding to the mouth of the St. Maurice in a canoe. Having reached the Grande Mère, I found the river all that could be desired for lumbering operations and that the slide and booms were in good order. Proceeded to the Hêtre rapids, a distance of about five miles, and found that although there was a rock near the head which caught some of the timber passing in high water, yet little or no damage was ever done, timber being easily removed in low water.

Paddled to Shawenegan, about 4 miles down the river, and saw no obstructions to the descent of lumber. At this station the slide and guide booms are in good working order.

There is a large boom supported by six piers in the eddy below the slide, and some new piers are being built, but it is my opinion that they are not required.

I next visited the Grais Falls, where there is a crib slide in course of construction. I do not see that the crib slide can be of much service to lumbermen when it is taken into consideration that at Shawenegan, where the fall is about 135 feet and about five miles up, timber must pass in single sticks and the same can be taken from the Grais to the retaining boom at the mouth of the St. Maurice in a few hours.

That the proposed crib slide at the Grais is unnecessary is further evident from the fact that the foot of the Shawenegan falls (where the making of cribs would take place) is very badly adapted for that purpose and the cost of making and running a crib to the mouth, a distance of only 24 miles, would be as follows, exclusive of tolls:

For crib frame, say	£0	2	6
" expense of rafting	0	7	6
" 4 men's wages running 24 miles one trip per day	1	0	0
" 4 oars *a* 1s. 6d	0	6	0
" Slidage	0	5	0
" expense of taking men back with team, say not less than 5s. each	1	0	0
Being a cost upon a single crib	£3	1	0

No practical lumbermen would be willing to incur such an expense when his timber could be driven in a shorter time and for a quarter of the money. Moreover, a crib slide at the piers would not enable lumbermen to send a crib down unless considerable outlay is made at the Gabel rapids, a short distance below the Grais, where the construction of a crib slide, a number of piers and guide booms, &c., would be necessary before timber could be passed in safety.

Supposing it were practicable to make cribs and take them from Shawenegan to the mouth of the river profitably (which I very much doubt, owing to the difficulties of rafting caused by the eddies and the swiftness of the water) the retaining booms there, which are now in good repair and were built at great expense, would be rendered useless.

In short, I am of opinion that logs and square timber can be profitably and quickly driven down from Shawenegan to the retaining booms at the mouth of the river, and that at some future time should saw mills be established at Shawenegan instead of the proposed expensive crib slides, piers and other works at the Grais and Gabel, a simple deal slide would answer every purpose.

It would be a very difficult matter for me to put a correct value on all the St. Maurice improvements, but, taking it for granted that copies of measurement of timbers and stone filling with the weights of iron, &c., used in the works, have been forwarded to the Department, I would state, for the information of the Commissioners, that from my experience from having work done by contract, I find the prices of materials, even at back settlements and at places such as Lake St. John on the Saguenay, to be covered by the following rates, viz.: White pine in cub. ft. in work, nine pence; Plank per thousand feet, B. M., 70s.; Stone filling, per cubic yd., 4s.; Rock excavation, per cub. yd., 7s. 6d.; and iron, per lb., 6d. These prices I would apply to the St. Maurice Works.

In submitting the above,
I have the honor to be,
Sir,
Your most obedient Servant,
HORACE MERRILL,
Supt. of Ottawa Works.

(See Plan of Improvements, Vermillion River, annexed.)

Estimate *of Expense of proposed Improvements at Iroquois Falls, on the Vermillion River:*

I. Dams.						
White pine timber, cubic feet in work, 3380, @ 9d.........				£125	15	0
Plank, B. M., 17,250 @ 70s. per M..........................				60	7	6
Iron Bolts and Spikes, 1000 @ 6d.				25	0	0
				£212	2	6
II. Boom.						
350 lin'l ft. complete, @ 5s...				87	10	0
III. Slide.						
440 ft. long, 6 ft. wide, and 3 ft. high, set on bent works; White pine timber, 12,093 cub. ft. @ 9d......................	453	9	9			
Plank, 49,000 ft. B. M. @ 70s. P. M.	171	10	0			
Iron Bolts, Spikes, &c., 1900 lb. @ 6d.......	47	10	0	672	9	9
				£972	2	3
Add for superintendence				75	0	0
Total cost..........				£1047	2	3

4/8 P.

G.

DEPARTMENT OF PUBLIC WORKS,
Toronto, 19th Nov., 1857.

GENTLEMEN,—In accordance with your instructions to visit the respective works of the River St. Maurice, in company with Mr. Merrill, and to report on their management, economy, &c., I have the honor to state, that having been joined by Mr. Merrill, at Montreal, on 13th October, we started without delay for Three Rivers, from whence we proceeded by land to Les Piles, a distance of about forty-five miles.

The road from Three Rivers to Les Piles, runs nearly parallel with the river St. Maurice, and over it all the provisions and other supplies for the lumbering establishments of the District have to be passed. The numerous falls, consisting of La Gabelle, Les Grais, Shawenegan, Les Hetres, La Grande Mère and Lespiles, rendering up-transport by the river not only tedious but expensive. This road, although of so much importance, has been but partially improved, and being of such consequence to the lumber trade, which yields so large a revenue to the country, is entitled, in my opinion, to consideration with regard to further improvement. The portion between Three Rivers and the Forges is, with the exception of the hill leading down to the latter place, in a state of nature; there does not seem to have been any outlay whatever made upon it; from thence, so far as the Forges lands extend, the road is not in much better condition; from there to within about six miles of Les Piles it has been improved by the Crown Lands Department, under the direction of Messrs. Wells and Dawson. This portion of the road has been well made, and the Bridges, some of which are heavy structures, seem to have been well and substantially framed and put together, several miles of this part of the road being through very rich and deep loam, is easily cut up in bad weather.

The six miles near to Les Piles has only been cleared, it is neither formed nor graded, and could scarcely be in a worse state than it now is. With regard to the portion of the road made by the Crown Lands Department, a small sum of money annually could be very beneficially expended in freeing the water-tables from stones and branches of trees, filling the ruts and keeping the road properly rounded. It is true that on the completion of the St. Maurice Railway this road will not be required for lumbering operations, but, in the mean time, it is absolutely necessary that some improvement should be made.

On arriving at Les Piles we found our canoes, men, tents, provisions, &c., all ready. Here there is a considerable fall in the river, but it does not in any manner impede the safe running of either square timber or saw-logs.

Having blown a perfect gale for some days and the wind still continuing very strong, we were unable to start from Les Piles until the afternoon of the 17th, and arrived at La Tuque on the afternoon of the 21st.

The only public expenditure on this river, between La Grande Mère and La Tuque, has been at the Managance Rapids, where £160 have been laid out in blasting the points off some rocks in order to facilitate the passing of the steamboat. This work will require about £100 more to be expended in order to complete it.

Between Les Piles and La Tuque, a distance of seventy miles, a steamer has plied for some years past, and has given great facility for the transport of oxen, provisions, &c., required for the lumbering establishments; she is owned by Messrs. Phillipps & Norcross, who have large saw mills at the mouth of the river, and has rendered most important service to them as well as to the other large lumbering establishments of the St. Maurice.

The only work at La Tuque is a glance-dam in the rapid, constructed for the purpose of guiding the timber into the proper channel. There is also a log-house used as a residence, a storehouse and smith's shop. There is a large quantity of tools, blankets and other stores which should be disposed of, as stated in my letter of 9th September, addressed to the Commissioners. An inventory of them is attached hereto. I found all those articles in good order and well cared for.

The establishment here consists of two men who have nothing to do. I therefore gave them notice that so soon as I could arrange for the safe keeping of the stores, until the articles could be sold or removed, their services would not be longer required. They are paid £96 per annum, and found in board, lodging, fuel, &c. They have also an ox for hauling their firewood, &c. The ox I at once disposed of.

In the River Bostonais, a tributary of the St. Maurice, and immediately above La Tuque fall, there is a large quantity of booms. I am not aware for what purpose they were constructed; they have been lying in their present useless position for the last two years.

It seems the general opinion of practical lumbermen, that a timber slide should have been constructed at this station. In the present state of the works timber receives considerable damage in going over the fall, and from a very bad eddy below, a quantity of it is drawn in, which it is not only very difficult but expensive to remove. All this would be avoided by the construction of a slide. Mr. Merrill will, however, report on all this fully.

The expenditure by the Government at this station, as shewn by the books in the office at Three Rivers, amounts to something over eleven thousand pounds.

Having completed the necessary examination at La Tuque, we started for the River Vermillion, where we arrived about two hours after sunset on the evening of the 23rd.

The Iroquois fall, which is about five miles up the Vermillion, is said to be the only impediment to lumbering operations on this fine river, as it is impossible to pass timber over the fall without very great damage. Lumbermen, who have explored the locality, report most favorably, both as to the quantity and quality of the red and white pine, and in anticipation of the improvement of the Iroquois fall, timber limits up the river to a considerable extent, have been secured. Mr. Merrill, on a thorough examination of the fall, is of opinion that a slide could be constructed here at comparatively small expense, which would probably open up the river for lumbering operations to Red Pine Lake, a distance of over seventy miles.

We started from the Vermillion on the 25th October, and arrived at La Grande Mere on the morning of the 28th.

The works at the latter place consist of a single stick slide and a lare range of guide booms above, a slide-master's house and a few out buildings. The slide-master's residence is an expensive wooden building, having cost over £500, but having no chimney it is in constant danger of taking fire.

It has never been clapboarded, and having been badly constructed, has given way considerably in the dove-tails of the logs at the corners. When here in September, I had instructed the general Superintendent to have the portion of the building which was giving way properly secured, a chimney built and the house clapboarded, and being much too large for a slide-master's residence, 50 by 36 feet, and two stories high, I had further instructed him to run a partition through the house, one half to serve for the slide-master's residence and the other for the accommodation of the men who might be employed at the station. None of these instructions had, however, been carried out.

There is a large amount of tools and other stores at this station. See inventory annexed. They have been taken very bad care of and scattered over the premises. A stove and other articles have been lent by the slide-master without authority, and he has also used such articles as he requires on his own farm.

The land on which the building above referred to stands, has never been invested in the Department, and the present slide-master, after his appointment, having taken possession of the lot as a squatter, now demands the sum of two hundred pounds for his good will and for the improvements which he alleges that he has made to the property. On the representation of the Superintendent, see his letter of the 9th October, recommending the dismissal of this man, it was concurred in by the Commissioners, but their order has not yet been carried out.

Relative to the construction of three small piers and a boom below the slide ordered long since, I did not find that anything had been done.

Mr. Rousseau, the slide-master from the next station below, (Shawenegan), I found here overseeing the taking in of the booms.

The cost of the works at this station amounts to about £6,500.

Leaving La Grande Mère, we arrived at Shawenegan early in the evening. The works here consists of a single stick slide over a fall 138 feet in height, with extensive guide-booms both above and below. A blacksmith's shop (a good frame building), a log house, occupied by the slide-master as a dwelling, and a few out-buildings. All the houses have been constructed on the property of private individuals. It is absolutely necessary that land to some extent should be acquired at this post. The right of road from the foot to the head of the fall is indispensable, the portion of the beach where the booms are hauled out, a site for a garden, pasturage for a cow and wood land for fuel.

Every thing at this station seems to be in excellent order, same as when I visited it in September last. The establishment consists of a slide-master and an assistant. The latter, in my opinion, not being required in winter his services have been dispensed with until spring. Should any opening offer for permanent employment, I would strongly recommend Mr. Alfred Rousseau, the person now spoken of, as a faithful and efficient man.

The cost of the works at this station has been something over £14,000.

As at La Tuque and La Grande Mère, I found here a large amount of tools and other stores, all in exceedingly good order, but not required for any practical purpose. They are included in the annexed inventory.

Leaving Shawenegan we arrived at Three Rivers early in the day, passing Les Grais Fall, where some works were at present being proceeded with, on which Mr. Merrill will report. There not being any establishment at this place I did not make any stop.

The works at Three Rivers consist of numerous piers and extensive booms used for rafting, &c., a large storehouse built at the Government expense on ground, the property of the Messrs. Gilmour. There are here, as at the other stations, a large amount of stores. All matters seem in good order and to have been properly attended to.

The establishment at Three Rivers I found to consist of a debuty boom-keeper at the mouth of the river, and at the office the Snperintendent, a clerk and paymaster, and another clerk who is returned on the pay lists for Les Grais; also an office man.

No deputy boom-keeper being required permanently, I have dispensed with his services for the winter. The booms being all hauled out above water mark, there is not any person required to look after them. Not considering the second clerk necessary in the office, he has been discontinued.

With regard to the works generally, I would say, that the respective permanent establishments have heretofore been, in my opinion, much too expensive, and a number of men constantly kept on without any regard to their usefulness. I have therefore assumed the responsibility of making such reductions as I considered necessary, by which an annual saving of nearly £700, will be effected. See statement annexed.

The carryiug on of the works by day labour, with lumbering establishments, stores, oxen, &c., and finding the men in provisions, is highly objectionable, and will at all times entail an expense upon the Government of at least one-third more than the work can be done for by contract.

The large quantity of tools, blankets, canoes, stoves, cooking utensils, &c., at each of the stations, which had been provided when the works were all carried on by day labour, should be disposed of so soon as it can be done to advantage. I had taken measures to this effect (see my letter of 9th September last), but the panic coming on in the money market, limiting the lumbering operations for the season, at once put a stop to the course recommended.

With the exception of a beach lot lately purchased near Three Rivers, from Mr. McCabe, it does not appear that a single acre of land on which the buildings erected at the Government expense at the respective stations, the beach lots required for hauling out the booms, or the right of way round the falls of the river, has yet been acquired, or in any manner secured. The lands so required are as follows: At Three Rivers, the site on which the large store house now stands, with the right of way to the main road and to the river, or if the house could be removed to the Government property known as the " Wood-yard " it would be preferable; a portion of it could then be converted into an office. The beach lots required for hauling out the booms on in the winter.

At Shawenegan—The island at the head of the fall, between it and the slide, said to be the property of the Government; and if this cannot be obtained, the land would be required on which Slide Master's house now stands, the blacksmith's shop, and other buildings, with such beach lots as may be necessary, and the portage road leading from the foot to the head of the fall; land sufficient for a garden, pasturage for a cow, and ten acres or so of wood land for fuel.

At La Grande Mére—The site on which the Lock Master's house now stands with the land around it, on which is situated the store and other outbuildings, with garden, &c., same as at Shawenegan.

At La Tuque and Iroquois Fall, Vermillion River, reservations should be made similar in extent as mentioned for Shawenegan and La Grande Mere.

In a previous report to the Department, I stated that on the 1st October I had instructed the Superintendent to measure and stake out the quantity of land required at Shawenegan and La Grande Mére, and to send to the office a plan thereof. Whether it is that the Superintendent, not being competent to perform the duty, has neglected it, I cannot say, as he has given no reason for the delay.

While on this subject, I consider it my duty to state, that the Superintendent, from his utter inability to take levels, measurements, make the necessary calculations for estimates, examine accounts, &c., has placed himself in a wrong position. The correctness of the documents he certifies to cannot be depended upon, and he must constantly subject himself to be dictated to and controlled by his subordinates and the contractors whose work he is to oversee. At the same I must in justice to the gentleman state, that on all occasions I have found him most civil and obliging, and willing to afford every information within the compass of his capacity, but it is utterly impossible that the works can be continued in a satisfactory manner under his management.

I have the honor to be,
Gentlemen,
Your obedient servant,
THOMAS A. BEGLY,
Secretary.

The Hon. the Commissioners of Public Works.

INVENTORY of Tools, Canoes, Blankets, and other stores, the property of the Government, in store at Three Rivers, Shawenegan, Grand Mère, and La Tuque, on the River St. Maurice.

151 Augers.
10 Cross-cut Saws.
7 Pit Saws.
12 Handsaws.
2 Whip Saws.
5 Saw Setters.
189 Axes.
39 Adzes.
106 Files.
9 Rasps.
5 Bellows.
55 Hammers.
23 Crow-bars, 5 Winches.
19 Iron Squares.
15 Canthooks.
27 Handspikes.
20 Wrenches.
66 Iron Dogs.
43 Shovels.
2 Mining Needles.
32 Mining Bars.
2 Wire Drawers, complete.
5 Draw Knives.
5 pairs Steelyards.
6 Gimlets.
1 Spoke Shave.
3 Smoothing Planes.
1 Tongueing do
1 Moulding do
4 Jack do
31 Kettles.
2 do Iron.
5 Camp Ovens.
9 Table Knives.
2 Large Knives.
29 Forks.
2 Flesh Forks.
115 Spoons.
44 Chisels.
1 Stamp, "G. M."
8 Marking Irons.
4 Nail Stamps.
4 Mallets.
13 Links.
4 Vices.
1 pair Dog Irons.
1 Carpenters' Small Hatchet.
1 Scraper, 2 Iron Pins.
3 Screw Plates.
1 Trowel.
7 Old Bolts.
11 Screw Nuts.
3 Anvils.
11 Steel Punches.
4 Canoes.
4 Large Scows.
2 Small ditto.
2 Barges.
5 Boats.
2 Skiffs.
28 Paddles.
7 Anchors.
4 Grapplings.
2 Grappling Irons.
4 Rings for Scows.
27 Boat Hooks.
2 Gaffs, without handles.
7 ditto, handled.
7 Bake Pans.
1 Logging Chain.
1 ¾ in. ditto.
2 Snubbing Chains.
26 pieces ditto.
1 lot Boom Chain.
1 lot Broken Chain.
72 large Shackles.

16 Large Dishes.
204 Tea and Soup Dishes.
2 Wash-hand do
10 Candlesticks.
1 pair Snuffers.
24 Tin Plates.
3 Tea Pots.
1 Coffee Pot.
5 Iron Pots.
2 Large Tin Cups.
5 Small do
3 Gallon Measures.
1 Half-bushel Measure.
8 Frying-pans.
4 Large Dippers.
3 Small do
11 Oil Cans.
8 Large Coupling Chains, 1½ inch, and Shackles.
15 Small ditto, from ½ to ¾ in., and Shackles.
22 ditto ditto
1 Chain (old) 4¾ fathoms, ⅞ in.
1 ditto (good) 10 fathoms, ⅚ in.
1 ditto 4 fathoms, ¾ in.
2 ditto (new) 30 fathoms, ¾ in.
1 Large Chain.
3 Trains, 2 pairs Shafts.
4 Double Bob-sleighs.
1 Single ditto
1 Clivis.
5 Bob Sleighs.
1 pair Cart Wheels.
1 Stable Bucket.
4 Ring Bolts.
1 Cow Bell.
8 Scythe Handles, 11 Scythes.
12 Hoes.
2 Wheelbarrows.
11 Stoves.
72 lengths Stove Pipes.
3 pairs Pincers.
25 Tongs.
7 Pokers.
1 pair Smiths' Tongs.
6 Stove Stands.
2 Tin Guards for Stoves.
2 Stove Pans.
2 Wood Boxes.
9½ pairs Snow Shoes.
2 Horse Blankets.
60 pairs ditto.
2 bags and 28 lbs. of Oakum.
21 small ditto.
2 Chain Hooks.
1 Chain Stopper.
4¼ Coils 3 ps., and 291 lbs. Manilla Rope.
3 Coils and 7 ps. Tarred Rope.
1 2-in. Rope, 30 feet.
1 lot broken Rope.
14 Pieces old ditto.
60½ Bars and 8 pcs. Iron.
8 cwt. Scrap Iron.
1 lot of ditto.
179 Rag Bolts.
60 lbs. Shingle Nails.
2 Double Yokes.
8 Single ditto.
5 Ox Yoke Rings.
6 pairs Rope Traces.
1 Trace Chain.
19 Horse and Ox Draught Chains.
3 Rope-fastenings for Trains.
5 Harnesses.
2 Collars.
4 Bridles.
1 pair Reins
5 Whipple Trees.
25 Horse-shoes.
1 Small Bag of Ox-shoes.
67 Pike Poles.
19 Pikes.
4 Paint Brushes.
1 Sieve.
6 lbs. Blasting Powder.
40 Large Split Keys.
1 Spirit Level.
4 Levels.
1 Small Key, 1 10-gal. Keg.
5 Thump Lines.
3 Oil-cloth Spreads.
1 Bag.
10 Lanterns.
4 Lamps,
1 Tent.
1 Large Office Desk, Black Walnut Table, Drawers and Fittings.
4 Office Tables, pine.
1 Office Press, Black Walnut.
1 ditto large.
2 Small Office Desks.
6 Chairs.
2 Stools.
8 Benches.
1 Green Baize Screen.

40 lbs. Chalk.
40 Bushels Charcoal.
6 barrels Lime.
2 Padlocks.
25 Keys.
5 Ladles.
7 Water Pails.
2 Bucket Yokes.
2 feet Zinc.
2 Leather Aprons.
1 Farriers' Buttress.
1 pair Compasses.
1 Compass.
2 Foot Rules.
13 Grindstones.
1 Map.
1 Office Calendar.
4 Frames, Rules and Regulations
2 Bedsteads.
1 Beaudet.
1 Settle Bed.
1 Boom Staple.
5 Large ditto.
15 Small ditto.
43 Boom-bolt Washers.
4 Double Blocks.
3 Single ditto.
4 Snatch ditto.
1 Block Tackling.
1 Iron Block Sheave.

MEMORANDUM of the annual saving made on the River St. Maurice Works, by the reductions mentioned in the foregoing report, made in the permanent establishments.

	£	s.	d.	£	s.	d.
Office at Three Rivers, viz:						
Office rent, heretofore	30	0	0			
Office rent, at present	15	0	0			
	15	0	0			
Fuel saved	12	10	0			
Second Clerk	156	10	0			
Horse and waggon	132	0	0			
				316	0	0
Booms at mouth of river, one man, 313 days at 6s. 3d.				97	16	0
Shawenegan:						
Deputy Slide Master, 12 months at £7.10s.				90	0	0
La Tuque:						
Two men, 12 months, at £8	96	0	0			
Provisions, &c.	70	0	0			
Feed for Ox	15	0	0			
				181	0	0
				£684	16	0

H.—Recent improvements effected under the Honorable Commissioners of Public Works of Canada, in the River and Gulf of St. Lawrence and Strait of Belle-Isle.

LIGHT HOUSES.

Name of Light.	Position.	Latitude North.	Longitude West.	Number and Nature of Lights.	Miles seen in fair weather.		Colour or any peculiarity of Light House.	Height in ft. of centre of light above high water.	Height in ft. of building from base to vane.	Year erected.	Remarks.
					Stat.	Naut.					
BELLE-ISLE,—An Island at the Eastern entrance of the Strait of Bell-Isle, separating Labrador from Newfoundland. For further description, see Capt. Bayfield's sailing directions	Extreme South-west Point of Island.	51° 53' 00"	55° 26' 00"	A single fix'd white Light.	32½	28¼	A Circular Stone Tower faced externally with Fire Brick of a Light Colour.	470	62	Complet'd 1857.	*First Order Dioptric Light*, whole horizon lighted. The Light will be exhibited for the first time, 15th March, 1858, and the lighting will be continued from sunset to sunrise from that date to the last day of each year.
POINTE AMOUR,—Labrador Coast, Strait of Belle-Isle.	South-east Point of Fortean Bay	51° 27' 30"	56° 53' 40"	... Do ...	21¼	18½	...... Do	155	109½	... Do ...	*Second Order Catadioptric Light*, 2-3 of the horizon illuminated. The Light will be exhibited for the first time on the 1st of April, 1858, and the lighting will be continued from sunset to sunrise from the 15th of April to the last day of each succeeding year.
WEST POINT OF ISLAND OF ANTICOSTI.	Extreme Point West end of Island.	49° 52' 30"	64° 35' 00"	... Do ...	18	15	...... Do	112	109½	... Do ...	*Second Order Catadioptric Light*, 2-3 of the horizon illuminated. The Light will be exhibited for the first time on the 15th of March, 1858, and the lighting will be continued from sunset to sunrise from the 20th Mar. to the last day of each succeeding year.
CAPE ROZIER, — East Coast of Gaspé.	Extreme Point of the Cape.	48° 51' 00"	64° 15' 00"	... Do ...	19¼	16¾	...... Do	136	112	.. Do ...	*First Order Catadioptric Light*, 2-3 of the horizon illuminated. The Light will be exhibited for the first time on the 15th of March, 1858, and the lighting will be continued from sunset to sunrise from the 20th March to the last of each succeeding year.

NOTE.—On and after the 1st day of September next, Signals will be given at or near each of the above Light Houses by means of an Air or Fog Whistle, sounded at short intervals during foggy weather and snow storms, or by a nine-pounder gun, fired every hour, in case of the whistle being out of order.

The Latitudes and Longitudes determined from Bayfield's Hydrographic Charts as published by the Admiralty.

LANDING PIERS, RIVER ST. LAWRENCE—BELOW QUEBEC.

Name of Pier.	Locality.	Extreme Length in feet.	Depth of Water at end of Pier at Lowest Tide, in feet.
Berthier	South Shore of St. Lawrence	587	15
L'Islet	do do	1200	8½
Pointe aux Orignaux	do do	1200	15
Rivière du Loup	do do	1667	16
Rimouski	do do	2150	8½
Eboulemens	North Shore of St. Lawrence	920	9½
Malbaie	do do	475	18
Grosse-Isle Pier	Quarantine Island, off the Parish of St. Thomas	350	16

Office of Public Works, Toronto, January, 1858.

I.

Township Cabot, Camp No. 4.
St. Octave de Métis, 22nd February, 1858.

Sir,—This is to inform the Commissioners that, since the commencement of the survey and exploration of the proposed new road from the St. Lawrence to the head of Lake Matapedia, a distance of about thirty-three miles, I have been under the necessity of exploring three lines of nearly twenty one miles in length each, or sixty-three miles in all, before it was possible for me to find a line suitable for the construction of the road contemplated.

This will explain at once the reason why the exploration has lasted longer than was anticipated in my instructions of last November, (No. 22682.)

The lines represented on the plan furnished me by the Department, viz: Major Robinson's line, and the other to the south of it, have been explored throughout; the former I considered impracticable owing to the very narrow gorge of the River Tartigoux, running between steep and lofty hills which vary from fifty to nearly 200 feet in height, their bases approaching the river so close on either side, that it would be necessary, in order to obtain a passage, to cross the river more than thirteen times in about one and half miles, from one flat to the other, or to bridge the river one mile in length or more; the latter, or the line to the south of the railway line, I considered objectionable, owing to a range of lofty hills which it was necessary to traverse from Paquet's Brook to the present Kempt road at fourteen and half miles from Pointe aux Snelles, and thence to the fifteenth mile post.

The line chosen after a most careful examination, and which, in my opinion, offers the greatest advantages for the construction of a road, follows the present route from Ste. Flavie to Neigette, with such deviations as were necessary to avoid hills, and to obtain a proper bridge site across the main trunk of the River Métis, whence it reaches, and afterwards follows Paquet's Brook; thence, at fourteen miles from the St. Lawrence it reaches the Kempt Road near the sixteenth mile post, after traversing a series of côteaux of gentle acclivity, excepting that nearest to Paquet's Brook, which is objectionable on account of its steepness, but could not be avoided; from the sixteenth mile post, the line has been located generally in the position indicated upon the plan at about half a mile north of and along the present road for the remainder of the distance, with slight deviations, to the head of Lake Matapedia.

The line as located traverses a series of plateaux, interrupted at long intervals by ridges of rising ground ascending from one plateau to the other, with grades of 8 feet per 100 generally, and in a few instances of 6 feet per 100, or more. The plateaux are generally wooded with cedar, and required to be well mucked and drained; the côteaux or rising ground are generally wooded with white and black birch, spruce, &c., the land being dry and easy to drain. The section of country traversed by the line is favorable for settlement throughout, the soil being of good quality, free almost everywhere from rock and boulders, with large tracts of level ground requiring drainage in many cases.

This line has been blazed throughout, and opened for a distance of twenty-one miles, nineteen and half of which have been chained and levelled.

Thirteen miles yet remain to be opened for the chaining, which I expect will be fully completed by the 9th of next March, the weather proving favorable.

Two months have now elapsed since the work was first begun, viz: from the 20th of last December to the 20th instant, fully one month of which has been occupied in exploring, and the remainder in camping, portageing and measuring; the weather generally has been very unfavourable for the work, it having snowed fourteen days, and rained four during the time of our operations.

In conclusion, I have reason to believe that the advantages of the line selected over the other lines proposed, and the present Kempt Road, are such as to fully justify the time spent, and the expenditure incurred for the exploration.

The plan and estimate of the proposed road will be prepared and forwarded as soon as possible after the field work is terminated.

I have the honor to be,
Sir,
Your most obedient servant,
G. F. BAILLARGÉ.

Thos. A. Begly, Esq.,
Secretary, Department of Public Works,
Toronto.

K.

REPORT ON THE CONSTRUCTION OF THE GRAND BAIE AND MALBAIE ROAD.

To the Honorable the Commissioners of Public Works, Canada.

Gentlemen,—In conformity to the letter of instructions of the 21st ultimo, received from Thomas Begly, Esq., Secretary, I beg leave to submit to you my report on the work under my charge, on the Grand Baie and Malbaie road.

With regard to the work done during the fall of 1856, I refer you to my report of last year, on which I will merely touch, viz: that I opened out 7½ miles of road, 15 to 20 feet wide, stumped, grubbed and hoed the same, built two bridges of 80 feet span, one of 80 feet span, and one of 100 feet span, and a camp of 18 feet square, which, in all, with the explorations, &c., made by me before a start, cost £207 10s. 1d., (leaving a balance, unexpended, of the grant of £500) of £292 9s. 11d. currency.

On the 22nd June last, I again began my work on the road, not being able to obtain hands before, all being busy in putting in their seed.

I commenced at once by building the bridges, as the people ran much risk in passing the rivers, some of which were very dangerous, six of them are of good size, and of the following dimensions, one of 20 feet span by 15 feet wide, one of 80 feet span by 15 feet wide, one of 60 feet span by 12 feet wide, one of 70 feet span by 12 feet wide, and one of 100 feet span by 12 feet wide. The bridges of long span I made narrow, and well supported so as not to load heavy with snow in winter; those short, I made 15 feet wide. These bridges are made of the best wood I could find at hand, but three are made entirely of grey and black spruce, there being no means of obtaining other wood; there are other small bridges crossing small brooks, hardly worth mentioning. The cost of the six bridges before mentioned is in all £60, also repairs to the bridge over the Malbaie River, which would have gone next spring had the work not been done, and as it is a good solid bridge, I repaired it at the cost of £20 9s.

After the bridges were made I commenced where I left off last fall, and opened out about six miles, 15 to 18 feet wide, stumped, grubbed, and levelled off with hoe, not rounded off, or drained; owing to the intense heat and the distance of carrying the provisions, I had difficulty in procuring hands; so, to encourage them, I came down and commenced at Caillouton, about two miles from this village, and made two miles and seven arpents of road 18 feet wide, complete, drained and rounded off with cross drains, in which I met many large boulders that had to be blasted; this piece, which includes a bridge of 30 by 15 feet wide, cost about £100 per mile. When this portion of the road was finished, M. Baillargé arrived and gave me instructions to continue on, only 12 to 14 feet wide, to stump, grub and hoe the road level, but not to round off, or drain without further orders; so I continued and made one mile, when I received further instructions from your Department, which were no doubt given by Mr. Baillargé, and on which I acted at once by opening out at the end where I left off in the summer to come below, and making five and half miles of 12 by 15 feet wide, removing stumps and roots and levelling off with hoes, without rounding off or draining, as Mr. Baillargé instructed me, and seeing that the cold was setting in, I cleared merely a winter road of two and half miles of 8 feet wide, removing stumps and other obstacles to reach the Camp de Millieu, thirty-three miles distant from here, which I was prevented from doing more to, owing to the frost being in the ground.

The work and expenditure stands thus for this season:

Cost of six large bridges	£60	0	0			
Repairs to Malbaie Bridge	20	9	0			
My expenses and time accompanying Mr. Baillargé	10	5	0			
My time and men exploring the continuation of the road last spring	14	12	6			
Paid for clearing the road through to Malbaie of wind falls, &c.	6	0	0			
				£111	6	6
Cost of two miles and seven arpents of road completed				200	0	0
Cost of two and half miles opened for winter, at £10				25	0	0
Paid for fourteen barrels of biscuit, which I had carted up to the camp at Petit Lac St. Jean in spring, on purpose to sell to men in hopes of saving them the time of going below for it, and which was spoilt from humidity				17	4	6
Paid for tools, &c., required for road				6	5	3
Paid for Postages, Stationery, &c				3	4	11
Cost of twelve and half miles, that are made as per instructions from Mr. Baillargé, being about £29 8s. per mile				367	4	2
Balance cash on hand to go on with next spring				62	4	10
Total received by me this year				£792	10	2

My calculation is about £50 per mile, including the bridges, to make a good cart road of fifteen feet wide, rounded off and drained, and two and half feet cleared of trees on both sides.

To continue on as Mr. Baillargé would wish, it will cost about £35 per mile, including bridges; but as the District Town and Court is to be at Malbaie, and many people require to cross in summer in carts, I hope your Honorable Board will consent to open the communication through at once so that a passage may be given, and after that recommence so as to drain and round off the road a little, as without draining or clearance on either side, it will become almost impassable for carts, owing to the shade of the trees, or want of drain.

I believe it is the intention of the Government to survey a Township along the road next year, when many settlers will go in.

Referring you to my account current, and trusting all may be found satisfactory and correct.

I remain, sir,
Your humble and obedient servant,
PASCHAL BOUCHARD.

Grand Baie, 12th January, 1858.

L.

Ottawa Hydraulic Survey,
Ottawa, 1st March, 1858.

Sir,—Having completed the survey of the Chats Islands, it becomes my duty to submit, for the information of the Hon. the Commissioners of Public Works, the following report on the manner in which they can be improved for hydraulic purposes.

I forward you with this a plan of the Islands (numbering 157), showing the head and fall of water by contour lines instead of by sectional drawings.

To make them available for mill sites, I have chosen the Horse Shoe Falls and the others east of Great Chats Island as the main channel of the river, as at present the greatest body of water passes over them.

Between Indian Portage and Great Chats Island, by constructing dams in direction of the contour line, shaded Gambooge would give 19 feet head of water, and further, by daming in the direction of the line, colored burnt sienna eighteen feet head can be obtained—thus making half the western side of Great Chats Island, the eastern of Indian Portage and all the islands between them available for mill purposes. On the Island north of the last named, the frame of a mill was built by Josephus Mohr. The work was stopped by R. Conroy, he claiming the lease of the water privilege as his. The island on which the frame is built has not been leased to either.

The Islands north-east of the two last mentioned I would recommend being divided into wharfing lots, on which lumber could be piled preparatory to shipping or rafting.

The next Great Chats Island, I would suggest being divided into building, wharfing, and water lots. The lower portion being low land and flooded at high water, could be laid out in wharfing lots. The shores on either side of the upper portion in mill or water lots, and the middle portion in building lots.

The next Islands, those west of the Horse Shoe Falls, can be made available for Mill sites, but with the disadvantage of bringing the timber to be sawn through the Government slide, and booming it below the Island.

The Islands between the last mentioned and Victoria Island can be improved in two ways, either by running a dam from the pier at the head of the latter, in a westerly direction for six hundred feet, then down stream to the island east of the Horse Shoe Falls; and by throwing a pier, say two hundred feet long, up stream from the island west of Victoria Island, logs would be prevented from being drawn into the Rapids by the draught of the water. By constructing the above, the islands between Victoria Island and the Horse Shoe Falls would be rendered available for mill purposes along the contour line, shaded Carmine with thirty feet head of water, and, by using the small islands between the Carmine and Gambooge lines, Reservoirs or Mill ponds can be laid off for the different proprietors. On the other hand, dams can be built along the Carmine contour line, and the logs being run through the Government slide and boomed below the islands, would thus form a source of revenue.

Upon a portion of what is called McDonald Island, one of the above, but which in reality consists of three islands, there is a mill working one saw, owned by John McDonald of Fitzroy Harbor. This island or islands might be made of great value for milling purposes, but at present it does not repay the proprietor to purchase timber for sawing; he merely gathers drift logs, &c., wrecked in the Rapids, which he saws up, or disposes of.

Victoria Island west of the slide I would suggest being laid out in building and water lots, the portion between the slide and the Portage road kept as a Government Reserve.

The islands known as Grierson's and McGillivray's could also be made entrêpots for sawn lumber, previous to being rafted or shipped.

Regarding the disposal of property at the Chats, the Islands should be divided into building, water and wharfing lots, to suit purchasers, to be disposed of at public auction and on conditions of improvements being made within a specified time.

Good stone for either buildings or for filling cribs is to be found on many of the islands, or on the main shore in the vicinity.

Mr. Merrill and I, who were conjointly to have laid out the islands in the Chats Rapids into hydraulic and other lots, owing to the season being so far advanced when the survey was completed, deemed it more advisable to postpone doing so until the snow had left the ground in the Spring.

Since the 28th August, 1857, the small party under my charge have completed the survey and levels of the Chats Islands, with two plans, one of 400 feet to the inch, and another of 200 feet to the inch. The survey of about 3½ miles of the River Madawaska above Arnprior and that portion of the River Ottawa from the Rimoux Rapids to the foot of the Chaudière slide—plans of the last will be ready in about two weeks. In addition to the foregoing, a survey was made and levels taken of the slide at Gagnon's Rapids, River Saguenay.

In conclusion I would state that the proposed improvements at the Chats would create mill power to an almost unlimited extent, and that no damages would arise from the flooding of land, &c. The hydraulic lots being disposed of at the Chaudière, and the facilities with which the Chats can be reached, with the Ottawa valley rapidly becoming an agricultural and settled country, the slides and improvements of the Ottawa River, and its tributaries for the lumber trade in an efficient state. The Islands at the Chats cannot but be of the greatest value for hydraulic purposes.

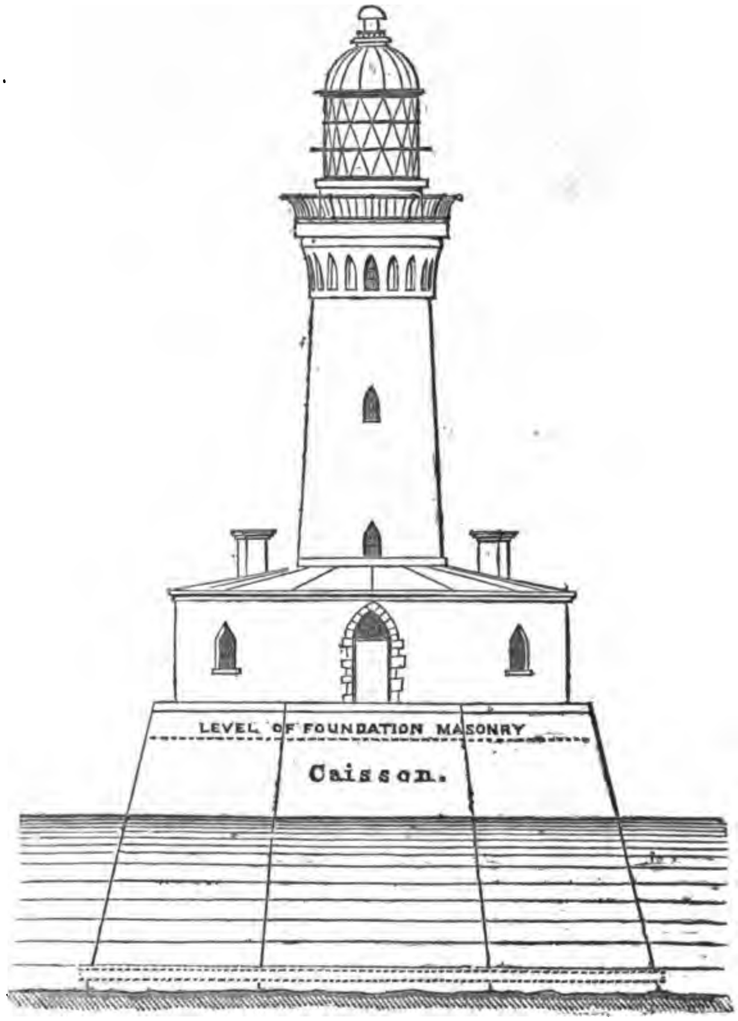
I am, Sir,
Your obedient Servant,
THOS. E. NORMAN, C. E.

PLANS REFERRED TO

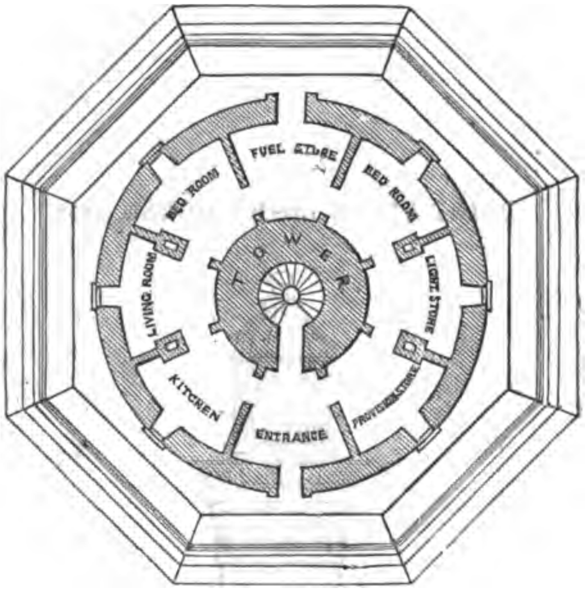
IN

THE FOREGOING REPORT.

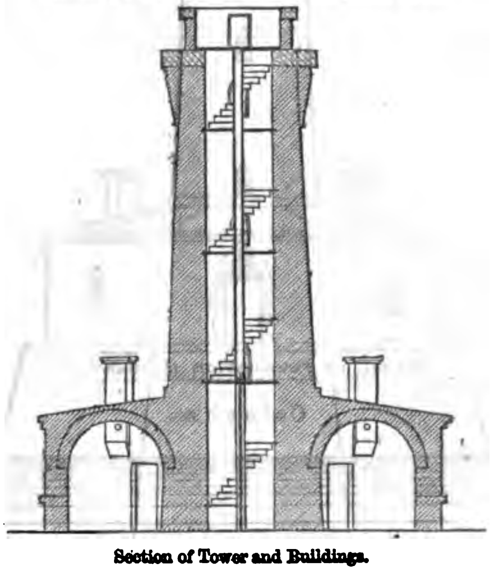
POINT PELÉE LIGHT HOUSE, 1858.



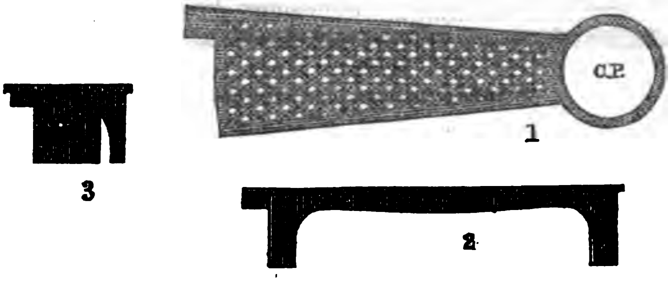
Elevation of Buildings, Light Tower and Lantern.



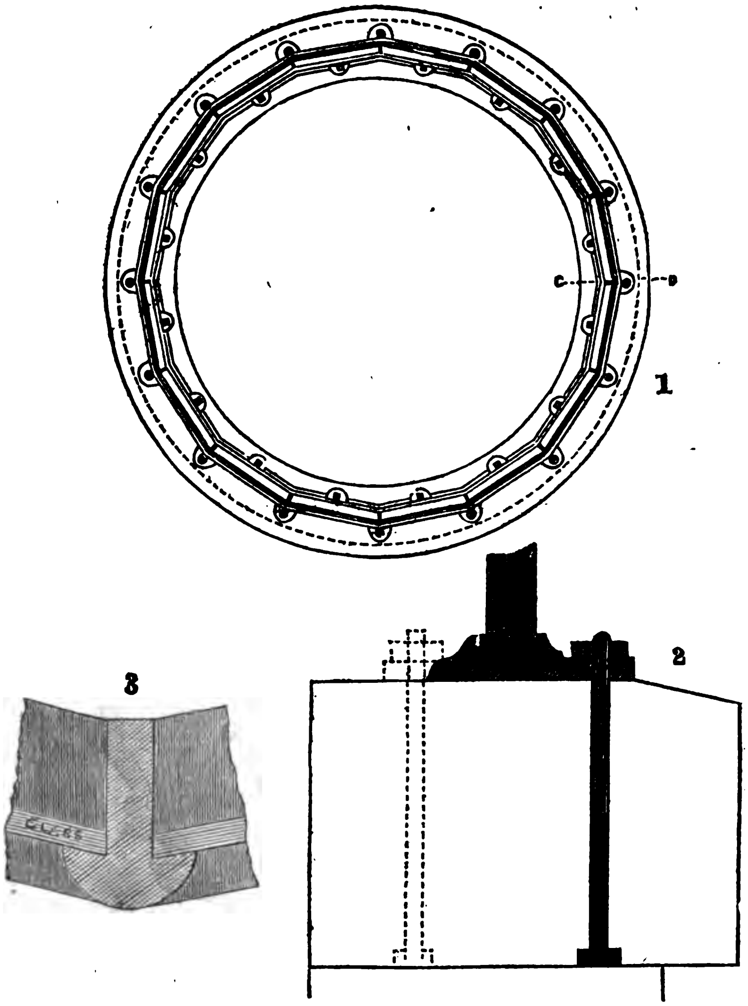
Ground Plan of Light House Buildings and Tower.



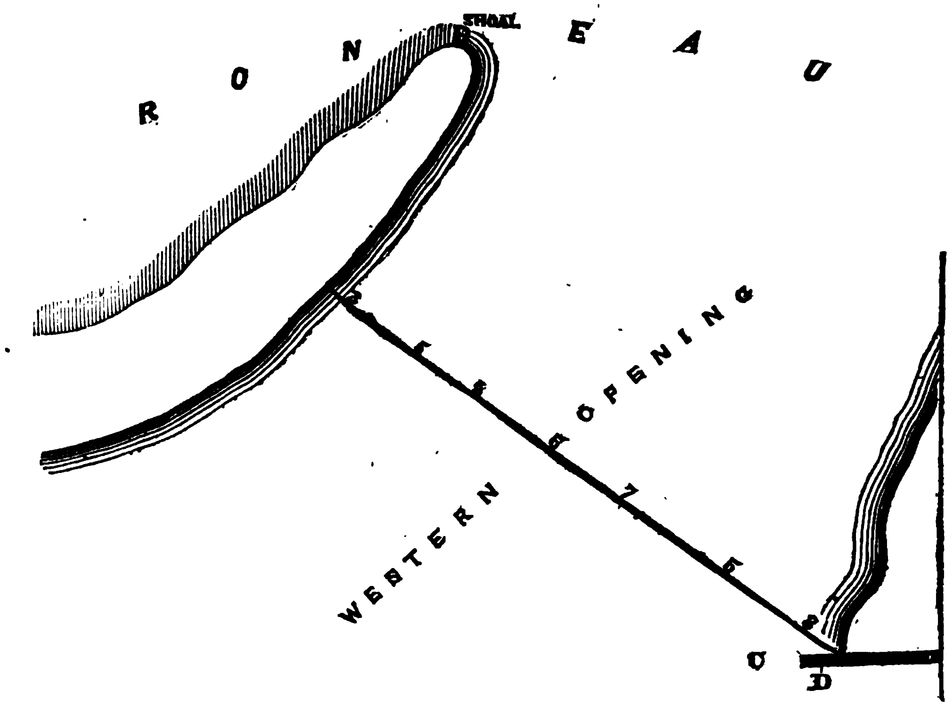
Section of Tower and Buildings.



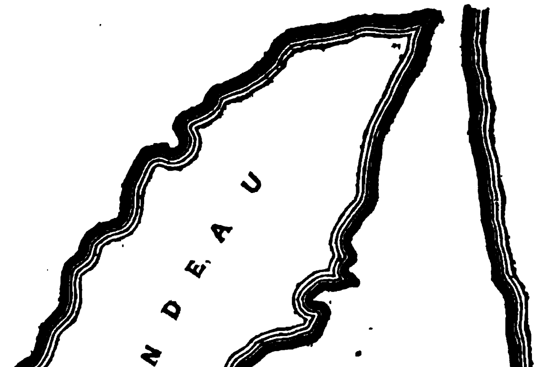
1. Plan of Cast Iron Step. 2. Elevation of Cast Iron Step. 3. End Elevation of Cast Iron Step.



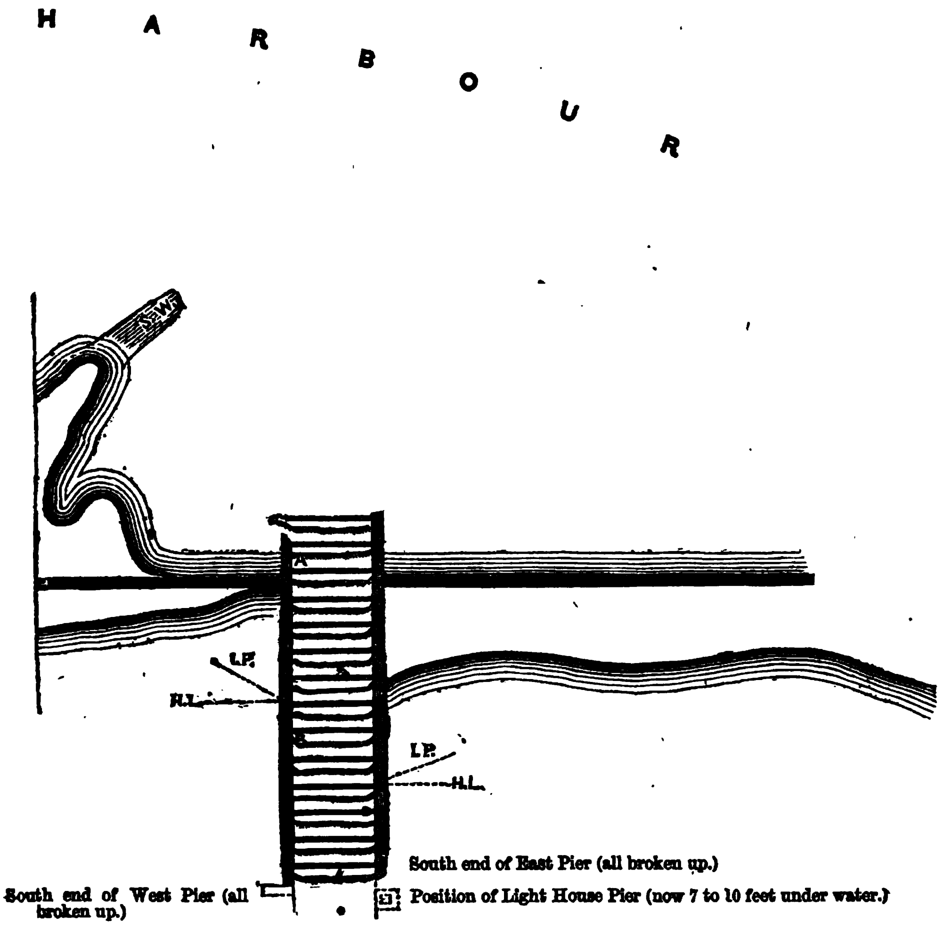
1. Plan of Lantern shewing Sole Plate, Astragals and Coping.
2. Section of Sole Plate, &c., on the line C. D.
3. Section of Astragal.



3 5 3 5 7 5 3.—Line of Sounding in feet and Cross Section.
C.—Breakwater, East and West.



W. O. 1.—Western opening before Harbour works were made (closed December, 1857.)
W. O. 2.—Western opening December, 1857. E. H.—Entrance of Harbour.



South end of East Pier (all broken up.)

South end of West Pier (all broken up.)

Position of Light House Pier (now 7 to 10 feet under water.)

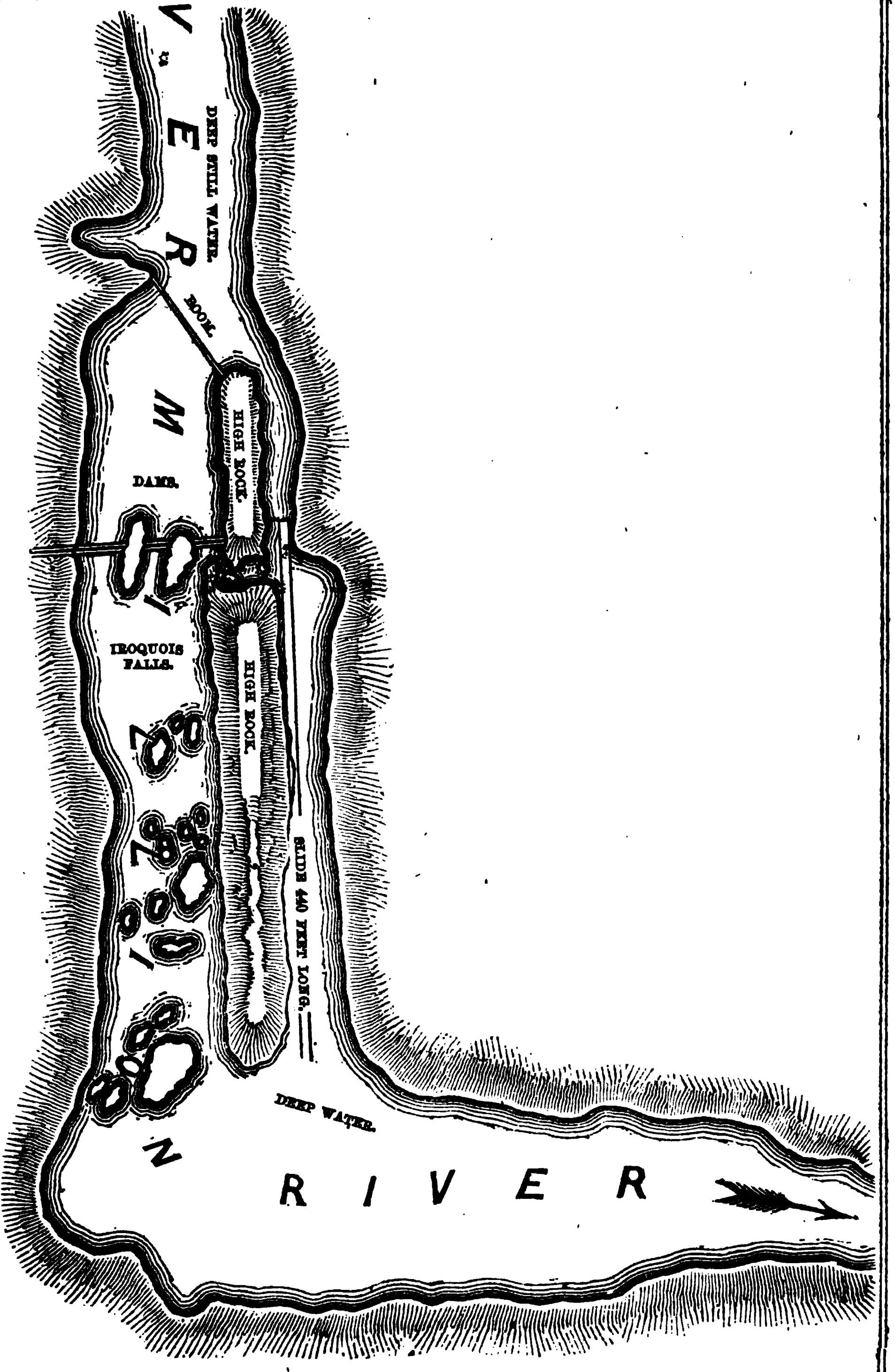
* Entrance to the Harbour, with uniform depth of 21 feet.

S. W.—Shoal, under Water.

L. P.—Inclination of Top of Pier.

H. L.—Horizontal Line.

SKETCH SHEWING NATURE OF IMPROVEMENTS AT IROQUOIS FALLS, VERMILLION RIVER.



JOHN LOVELL, PRINTER, YONGE STREET, TORONTO.

GENERAL REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS,

FOR THE

YEAR 1858:

FURNISHED

IN COMPLIANCE WITH THE PROVISIONS OF THE ACT 9 VICT. CAP. 7.

LAID BEFORE THE LEGISLATIVE ASSEMBLY.

Toronto:
PRINTED BY STEWART DERBISHIRE & GEORGE DESBARATS,
Printer to the Queen's Most Excellent Majesty.

1859.

GENERAL REPORT

OF THE

COMMISSIONERS OF PUBLIC WORKS

FOR THE YEAR 1858.

To His Excellency Sir Edmund Walker Head, Bart.,
GOVERNOR GENERAL OF BRITISH NORTH AMERICA, &c. &c. &c.

MAY IT PLEASE YOUR EXCELLENCY:

In accordance with the provisions of the Act 9th Victoria, chap. 37, sec. 14, the undersigned, Commissioners of Public Works, have the honor to submit to Your Excellency a general Report upon the several public works and buildings and other branches of the public service under their control and management.

To this report are appended the following Schedules:

No. 1.—Statement of the several public works under charge of this Department which are in use and yield revenue, shewing the expenditure under the different heads during the year 1858, viz: on construction, and on repairs and management, the sums paid for land or property acquired for use of the works, and the amount paid for damages, the net revenue collected from each, with the cost of collecting it; also the total cost of construction under this Department to the 1st January, 1859.

No. 2.—Statement of the several public works under charge of this Department, incomplete and unproductive, but on which tolls are to be levied when the works are in an available state, shewing the expenditure thereon during the year 1858, viz: on construction and on repairs and management, the amount paid for damages and the total expenditure on them, under this Department, to 1st January, 1859.

No. 3.—Statement of non productive public works and buildings under charge of the Department of Public Works, shewing the amount expended thereon during the year 1858, and the total outlay upon them up to 1st January, 1859.

No. 4.—Statement of miscellaneous services, shewing the expenditure on each, under the Department of Public Works, during the year 1858.

No. 5.—Statement shewing the expenditure incurred under this Department upon the repairs, maintenance, and management of the Ordnance Canals for the year 1858, the net revenue therefrom, and the cost of collecting it, also the expenditure on repairs of Ordnance property, during the same year.

No. 6.—Detailed statement of expenditure incurred on repairs and maintenance of Provincial Light Houses during the year 1858, under this Department.

No. 7.—Statement shewing the total amount expended under the Department of Public Works during the year 1858, as detailed in the foregoing statements numbered 1, 2, 3, 4, 5 and 6.

PROVINCIAL CANALS.

WELLAND CANAL.

The works carried on along the line of this Canal during the past year may be classed as heretofore, under the two heads of "*Construction*" and "*Repairs and Maintenance*," although it is very difficult to draw the line between the two, inasmuch as this most important work has been from its commencement, and still is, in a state of continued progress and enlargement, both as to breadth of channel and depth of water, in order to keep pace with the requirements of the trade. On its being first undertaken, the scale contemplated would have been sufficient but for petty Barges or Batteaux, which, at one part now known as the "*Deep Cut*," were to have passed underground by means of a tunnel. It is at present capable of passing vessels of four hundred tons. Yet this is now looked on as so insufficient, and so great is the loss of business of the canal, calculated to be from its not being able to accommodate vessels of double that tonnage, that the project was broached of constructing a railway (it may be said along its bank from end to end), freight upon which can only be during the open season of navigation, and must contend against all the disadvantages and expense of transhipment from vessels at one end of it to the cars and from them again into vessels at the other end, the distance being but 27 miles; this project has not only been broached, but has been so favorably received by practical men in England, that the whole of the stock is taken up, and the works of the road itself are at this moment on the eve of completion, through the indefatigable energy of the Honorable W. H. Merritt.

Under the firm conviction that this canal is preeminently indispensable, not only for the securing of a large portion of the trade of the west, and to render available and productive all the heavy expenditure upon the improvement of the magnificent Canadian water route to the Ocean, but also to prevent the existing trade through it being diverted into other channels, the undersigned would strongly recommend to the favorable consideration of Your Excellency and of the Legislature, the sound policy and expediency of making an appropriation of means to meet the expense of adding largely to the capabilities of this Canal at the first moment that a satisfactory financial arrangement can be made for it.

The navigation of the past season commenced on the 7th April, and was terminated by ice on the 7th December, during that period the interruptions to it were less than ordinary, being but two: both were caused by the breakage of Lock-gates from the concussion of vessels. The first took place on the evening of the 3rd May, when the gates of Lock No. 7 were carried away: The broken gates were removed, others substituted and the navigation reopened on the 6th; again in the evening of the 22nd of the same month, three of the gates of lock No. 3 were destroyed: through the energy of Mr. Woodruffe, the local officer, and there being an ample supply of spare gates and suitable machinery on hand, the delay caused by this casualty, was but for forty hours. The only work of importance classed under the head of "*Construction*," was confined to the usual annual progress with the widening and deepening of the channel of the canal where required for the adoption of Lake Erie as the source of supply for the canal, the indispensable necessity for which has been repeatedly explained in previous reports. During the past season there have been four First Class Steam Dredges or Excavators employed at this work.

Under the head of *repairs and maintenance* the principal works have been the providing of spare Lock-gates to keep up a sufficient stock to meet accidents,—raising, facing and strengthening the embankments, neessarily contingent upon the encreased depth of water in the canal, and which must be continued for some years,—providing a house for an office and accommodation for the Harbor Master at Port Colborne. The repairs, &c., at Port Dalhousie and Port Maitland referred to in the last report, as required, have been effected.

For full and detailed information as to the expenditure of the several appropriations made from time to time for this canal, the appropriation required hereafter (when the finances will admit of it) for the completion of various works, cost of maintenance and repairs the past year under their different heads, see Appendix (letter A,) together with the various Schedules in connection therewith from No. 1 to No. 7, both inclusive, called for and furnished by M. Woodruff, the resident superintendent of the Canal.

With respect to sums set down in these documents and recommended by the superintendent for the prosecution of various works, the undersigned, altho fully aware of their ultimate necessity, are of opinion that for the present year outlay should be confined wholly to a minimum sum upon the keeping of the dredging operations in progress, and to two or three comparatively minor yet requisite matters, which will be explained when the estimates are submitted.

GALOPPES, IROQUOIS, RAPID PLAT AND FARRAN'S POINT CANALS.

The navigation of these several canals was opened last year on the 25th April, and closed on the 11th December, during which period no interruption took place arising from the failure or derangement of any part of the works.

The unusual and extreme high water in the river rendered it necessary to raise, strengthen and protect with stoning, the embankments on these canals, in many places, where the danger was most imminent. For these works the employment of a number of laborers, with the aid of two scows, was requisite for the greater part of the year 1858, and they must necessarily be resumed next summer, to complete the protection of the banks, and to prevent the silting up of the canals.

As stated in the last report, there are no new spare gates on hands, or available in case of an accident occurring, to meet which, should it have taken place, use must have been made of some of the old gates, which had been taken down. It is highly desirable to have two pairs of upper gates, and one full set constructed as soon as the necessary authority is had, as several of the upper gates show unmistakeable symptoms of failure.

The superstructure of the swing-bridge for crossing Lock No. 23, at Morrisburg, being worn out, must be replaced by a new one.

Several of the wharves at the entrances to these canals are in a very dilapidated state, the general repair of them, however, although desirable, may be deferred for another year; but the thorough repair of the wharf at the lower end of Farran's Point Lock, must be immediately undertaken, as it is very much decayed, and from its position and the peculiar action of the current there, it is of great importance to vessels whether entering or leaving the lock.

Since the date of the last report arrangements have been made to bring into use the water-power at Farran's Point and at the Galoppes Canal.

CORNWALL CANAL.

The navigation of this canal ceased to be obstructed by ice on the 26th of April last, since which date it continued uninterrupted until the 7th of December, when it was again closed for the winter.

Within the last two or three years new gates have been supplied to all the locks, and there are now three extra pairs on hand, which, with some of the old gates, capable of being repaired, are considered sufficient to meet any emergency.

The works of this canal generally are in an efficient state; but the superstructure of the pier at the upper entrance is thoroughly decayed, and must be renewed in spring. The river embankment above and below the Guard Lock requires to be additionally protected by stone, from the powerful current constantly acting on it. And a facing with stones, for about 1500 yards in length, is necessary on the north side of the canal between locks 18 and 19, to prevent the water making further encroachments on private property.

For the means of regulating the water supply on the different levels, certain sluices, easily to be worked, are much required in the waste weir at locks Nos. 18, 19 and 20, but in the present state of the finances, their construction may be deferred for another year.

In the foregoing are enumerated the principal matters required on this canal.

The rebuilding of the chamber walls of the Guard Lock (for which authority was had) could not be effected last spring without encountering much risk and extra expense owing to the unusual height of the river, but so soon as the state of the water will admit of it, this work must be attended to.

The Head Gates for the furnishing of water-power at Lock No. 20, above the town of Cornwall, have been completed. This water-power has been leased to two parties, and the proportion falling to one of them is now being brought into use. Works for a similar purpose are being constructed between Locks 17 and 18.

The use of water-power at Lock No. 19 has also been agreed to, at the usual rate and upon the conditions generally applicable to such cases, but before the party can avail himself of it, an appropriation for the construction of the Head Gates will ne necessary, the cost of which will be submitted in the Estimates.

BEAUHARNOIS CANAL.

The past year's navigation of this canal opened on the 26th of April, and closed on the 26th of November.

During the season no expenditure was found necessary beyond that on small ordinary repairs, and from the present condition of the works, there is every reason to expect that they will be maintained in an efficient state this year at a comparative trifling outlay.

The locks have been well provided with new gates, in all cases where the old ones were not capable of being put into thorough and efficient order. There are three pairs of spare upper gates in reserve, and when a like number of lower gates are constructed, which it is proposed to do during the summer, the supply will be ample to meet any casualty that may occur.

The silt, slides and other obstructions which interfered with the free passage of vessels, have been removed by dredging, so that the full draught can be carried through the canal without the necessity of keeping the water at an increased height, to the danger of the embankments.

The dredge, for the use of which there are several applications, can now be made available for such work as may be considered most pressing. On the principle of restricting the expenditure under this Department, during the past year, within the least possible bounds, no outlay beyond what was absolutely indispensable, was incurred upon the renewal of the superstructure of the breakwater at Grosse Point, nor on the repairs of the dam at the head of the canal, both stated in the last report to be necessary; but these works cannot be deferred beyond another year.

The undersigned here consider it their duty to draw attention to the large sums of money which have been already paid, and to the amounts still claimed for damages asserted to be caused by the raising the waters of lake St. Francis a few inches at most by the dams at the head of this canal.

The manner in which the awards on these claims have for some years back been made, appears to the undersigned by no means practical or satisfactory. It is well known that very much the larger proportion of the lands around lake St. Francis for damages to which these claims are made, consisted of marsh and low swampy meadow, and prior to the construction of the dam were subject to the influence of the lake in all time of high water. The waters of the St. Lawrence and its lakes have been latterly *some feet* over their ordinary height, and it is in that state of the river that pressure is used to have claims investigated for damages caused by a dam admitted to raise the water but a few inches.

The undersigned would strongly recommend that a special Commissioner should be appointed by authority of Parliament, whose duty would be to take evidence as to the character of the lands, prior to the dam, for which claims are pending, and thus be enabled to adjudicate equitably as to the cases where damages should be paid for and the extent of them. Unless some such course is adopted the settlement will be interminable and attended with a cost utterly disproportioned to the injury done.

For sums paid and unsettled claims. See Appendix letter B.

LACHINE CANAL.

The navigation of this canal was opened on the 28th April, and continued uninterrupted until the 1st December, when the ice closed it for the season.

On the 3rd of April the water was drawn down for the purpose of making some necessary repairs, of removing bars that had formed in the channel way, and to enable certain improvements to be made, the principal of which were the construction of a regulating weir through the race-way, on the north side of the canal above lock No. 3, whereby the water passing to the various manufacturing establishments can be controlled so as to prevent the necessary navigation level of the water being drawn down,—the taking down and rebuilding part of the lower wing walls of lock No. 4,—deepening the basin in front of the wharf recently built near Wellington Street Bridge,—removing a bar of rock at Côte St. Paul, &c.

An arrangement has been made with the Montreal Gas Company for the lighting of the wharves, flour sheds, locks and bridges at the lower entrance of the canal. The necessary pipes, lamp posts, &c., have been laid and placed, and the works lighted up since the middle of August last. In connexion with the lighting of the wharves, to lessen the risk of accidents, a chain a few inches over water surface has been attached to the basin wall, which will afford to persons who may accidentally fall in, the means of supporting themselves until relieved.

The locks and bridges generally are in a fair state of repair, with the exception of locks 3 and 4, which still leak considerably, to remedy which it is proposed to caulk and point the joints carefully next spring.

From the extent of traffic and cartage over the wharves and between the flour sheds, the plank crossings in many places must be renewed before the opening of navigation, and it is a question whether it may not be more advisable hereafter to substitute macadamization of good stone for the planking (between the sheds) as the latter becomes worn out. The planking in this position seldom lasts more than from 2 to 3 years. For several of the works referred to in the last report as being then required, the necessity now is of course stronger, still, with the view of keeping down expenditure as much as possible, it is proposed to defer them for another year which can be done by incurring the cost of some repairs; but the construction of the pier at the head of lock 4, cannot longer be postponed with due consideration for the convenient use of the canal. The cost of it will be about five hundred pounds.

It will be necessary to let off the water for a short time early in April, to clean out No. 2 basin, to remove some bars below lock 3, and for the pointing of locks 3 and 4 above adverted to.

RIVER TRENT AND INLAND WATERS OF THE NEWCASTLE DISTRICT.

Under the head of "River Trent Works," in the report of 1852–53, as well as in that of last year, from this Department, will be found enumerated, the various works along this connected line of waters some of which had been originally constructed or commenced by local Parliamentary Commissioners, and some under this Department, and upon which from time to time outlay has taken place.

The position, character and objects of these works are described in the reports referred to. A portion of them were intended and undertaken chiefly with the view of improving the navigation of this natural water-route; another portion of them, solely for lumbering purposes.

The latter were some years back (in 1854) handed over to a Company incorporated by Act, who undertook to maintain them. Since this transfer no public expenditure has been made upon them, and they are now only referred to in consequence of representation being made as to the immediate necessity for spending the sum of £500 on the repairs of the slide at Ranny's falls, without which, it is stated, the lumber got out this season on the River Trent and its tributaries above that place, cannot be got down to market; and it is urged that independent of the obligation on the Company, to whom the slides are transferred, to keep them in order, the various parties renting timber limits (and who may be prevented from sending down their timber) did so on the expectation that the slides would be kept in a serviceable state.

Of the portions of these works which were constructed chiefly for navigation purposes, that at Chisholm's rapids (a lock there) has long since been abandoned, as unless a very large additional outlay was made, it was "per se" comparatively of no value.

The lock and dam at Crooks' rapids are necessarily maintained, as the former is used for the passing of batteaux, &c., and the latter is required for the maintenance of the navigation of Rice Lake and the Otonabee River as far as Whitlas' lock, within a mile and a quarter of the town of Peterboro'. The swing bridge at Crooks' rapids lock has been lately rebuilt, and the dam and other works there repaired: Vessels having ceased to proceed up the river beyond Whitlas' lock, permission was granted for the erection of a bridge upon the high road of communication being placed across the navigable channel there, but on the condition that a swing bridge shall be placed over it, if hereafter required.

The next work constructed for navigation purposes to be met with on proceeding up these waters, is the dam at Buckhorn, which was constructed to raise, and maintain the waters in Buckhorn Lake, Shemong or Mud Lake, and Pigeon Lake to a proper level.

This dam and the bridge and other works connected with it, have been thoroughly repaired, and are now in an efficient state. In the erection of this and the other dams for the purposes of navigation, in order that they should not obstruct the running of timber, it was of course necessary to construct a slide (or apron) in each of them. The guide-booms and piers connected with the slide or apron in this dam, have been substantially repaired, but it is important that the slide should be extended from 150 to 200 feet further down stream, and that a person should be appointed to take charge of the works, and attend to the regulating of the water. A very economical arrangement for which could be made with a party resident on the spot.

The works next above those at Buckhorn are at Bobcaygean ; they consist of a lock, dams, and a short reach of canal, and form an important link in the navigation of this extensive range of waters.

The works were much retarded and the progress at times interrupted ; in fact, for the principal part of two seasons, the contractor was required to desist from proceeding with them, in consequence of representations made as to the injurious effects upon the health of that section of country, should the waters of the lake be lowered during the season of the year which was the most fitting for the prosecution of the work. This subject has been referred to in a former report, as also the many, great, and unusual difficulties that had to be encountered in getting in the foundations, owing to the geological structure of their sites, which consisted of irregular horizontally stratified rocks, with numerous large fissures extending for miles under the water of the adjoining lakes, and to stop which involved immense difficulty and expense.

The works are now completed in a strong and substantial manner and will well bear comparison with any similar works in the province. Near the tail of Bobcaygean lock a small expenditure would be advisable to improve the channel leading to it, and to form a separate one for the discharge of the waters from the mills, the current from which at present obstructs the easy approach to the lock.

When this work was originally commenced, under local Commissioners, it appears that no reserve of land on either side of the canal was made, the want of which, as the surrounding country is being settled, is found very inconvenient, especially by parties engaged in shipping sawn lumber, &c. and in the landing of merchandize. It is very desirable that this want should be provided for.

RIVER SCUGOG WORKS.

These works come under the same head as the preceding ; they consist of sundry improvements in the River Scugog, and a lock at Lindsay, to surmount a fall in the river at that place.

The works are in much the same state as when last reported on. Since that time but little outlay has been incurred, and only on the preparation of materials for the rebuilding of the lock: the old one is in a ruinous state; so much so, that the delay and difficulty in passing a boat through it is such, that transhipment is made from a vessel at the foot of the lock, to another at the head of it.

It is very desirable that the new lock should be completed, all the plank and lumber for it is delivered, and a very large proportion of the cut and other stone, ready for the work. The contractor has already preferred claims for losses sustained by him for the delay of the works, and it is necessary either that he be allowed to proceed at once, or close with him for work already done and the material, &c. provided.

OTTAWA WORKS.

Navigation.

The works embraced under this head are the lock and dam at St. Anne's, the Carillon and Grenville Canals, and the Chats Canal.

ST. ANNE'S LOCK AND DAMS.

The navigation through this lock was opened on the 19th April, and continued so without interruption until the 29th of November.

The lock and gates are in good order.

The channel above and below the lock has been deepened and improved sufficiently for the class of vessels at present engaged in the Ottawa trade.

The superstructure of the pier connected with the lower south wing of the lock requires to be rebuilt, and the main dam is in rather a dilapidated state; but with some slight repairs, it can be maintained for another year.

THE CARILLON AND GRENVILLE CANALS.

The observations in the last report under this head are still equally applicable, viz: That any serious outlay on them would be highly inexpedient, until the scale of the Ottawa navigation, generally, is first determined, and that expenditure upon them, in the mean while, should be confined strictly to such repairs as are indispensable for the use of these canals in their present state.

The masonry of the lock at the lower entrance, and a portion of that of the lock at the upper entrance of the Carillon Canal is in a very bad state.

Some sludging or cleaning out of the bottom will be necessary, and an expenditure of about 300 dollars is required upon the clearing of the feeder from the North River.

The portion of the main travelling road past the Carillon Canal of about 2¼ miles in length was made originally by the Ordnance. The cost of the maintenance of it and the keeping of it clear in winter for the last 16 years has also been borne by that department, but the undersigned are of opinion that this service should devolve upon the Municipality, or those by whom the road is used.

For a statement of the trade and of the receipts on these Canals, see Appendix letter C.

The Superintendent represents strongly the inadequacy of the rates at present charged; as also the necessity of abrogating the rules for the management of these canals when under the Ordnance, and which are still in operation, and of applying to them the regulations framed and sanctioned for the use of the provincial canals.

CHATS CANAL.

No progress has been made with, nor any expenditure incurred upon this work, since the date of the last report. The suspension of it, in the first place, was owing to the total inadequacy of the contract rates for the execution of work under such unusual difficulties as had there to be encountered; and until the results are arrived at of the surveying operations, at present being carried on to ascertain the most suitable scale by which the improvement of the navigation of the Ottawa should be governed, it is manifestly very undesirable that any further outlay should take place.

A very complicated settlement with the contractors had to be undertaken on the stoppage of the works.

The claim put forward by them amounted to $367,161 40. The Engineer on being called upon estimated it at $274,108 63—and the opinion of the Assistant Commissioner being subsequently asked for, the sum of $342,647 12 was considered by him as a reasonable settlement. These conflicting opinions having been referred to Mr. Shanly, that gentleman stated $323,802 53 as the amount of their work in his judgment—but in this sum, it is stated, is not included an allowance claimed on account of plant. The sum of $323,802 53 has been paid.

RIDEAU CANAL.

For some years from the period of the transfer of this Canal from the Ordnance to the Province being proposed, until it was effected, little or no repairs were made by the Ordnance on it; the consequence was, that when handed over, the works were found to be in a very dilapidated state generally. Some of the most important structures, Locks, Dams, &c. were in different stages of decay—several of the walls of the former having bulged in considerably; some of the chief dams required measures of precaution to be taken to maintain them. A very large expenditure has already had to be incurred on repairs in consequence of the giving way of Long Island dam. The entire of the sluices of locks and weirs may be said to be unserviceable ; for a large proportion of the lock gates, now in use, new ones must be substituted, and on the transfer of the Canal, there was not one spare gate on the whole length of it to meet any accident—the tools and implements for its repairs were removed, and some castings provided for the lock gates were not given up with the Canal as they should have been.

The serious breach which took place at Long Island has been made good, but at an expense of not less than $20,667 41. The chief cause of this breach originated in the site of the dam and weir, constructed for the maintenance of the waters to a height suitable for the navigation, having been selected chiefly on account of their being within gunshot of a block house near the lock, rather than by the usual engineering principles ; as the dam and weir were placed, they stood on bad foundations, and the latter had a pressure of water to withstand of about 27 feet. In the repairs of the damage caused by the break, it was found much more advisable to construct the dam further up the river, and the weir still higher up, where the foundation is rock, and the head of water on the weir but eight feet.

The stone cills of the lock at Black Rapids are in so bad a state, and leak to such an extent that the lower gates of the lock have to be kept closed, and the water in it maintained at the high level.

In consequence of the partial failure of the stone curved dam at this place, a timber apron was built in 1841, to strengthen and save it from further damage ; the timber of this work is now thoroughly decayed, and its entire renewal will probably be necessary, but with some alterations of form.

The chamber wall of one of the combined locks at Hog's Back is reported to have partially given in, but may continue to stand for some time yet.

The walls of the lock at Brewers' Lower Mills have also failed in a similar manner, and the lower wing walls are in a badly shaken state ; on the appearance of the giving way of the chamber walls of this lock, some years ago, when the work was in the hands of the Ordnance, anchor timbers were inserted in the embankments behind them, and the lockwalls fastened thereto.

The sluices of the locks generally are in a very bad state, causing much leakage, difficulty in working, and the frequent breakage of the machinery for opening them. The principle of their construction, as well as that of the lock gates themselves is very faulty, and can be much improved upon, both as regards the lessening of labor in working, and the reducing the cost of them.

The sills of several of the locks have given way, and the repair of them, which is indispensable, will be attended with much trouble and expense, as in some cases dams must be put in and the locks pumped out in order to effect the repair. A large outlay will also have to be incurred upon the protection of the embankments, repairing the waste weirs, etc.

The outlay this year will be confined to such works of maintenance and security as cannot be dispensed with ; but the present state of the canal, from the proper repairs having been neglected for years, is such, that a large expenditure must be incurred upon it, so soon as the finances will admit of. For a statement of the trade and tolls on this and the Ottawa Canals, see Appendix letter C.

CHAMBLY CANAL.

The navigation of this Canal was opened on the 27th April, and the works (the very bad state of which has been referred to in previous reports) have been with strict attention maintained in a serviceable condition until the season closed on the 19th November.

The repairs referred to in the last report were completed during the past year, and with what had been effected previously, place the works, with few exceptions, in a better state than they have been in for several years.

These exceptions are the south wing and recess walls of Lock No. 6, and the lower wing and recess walls of Locks Nos. 2 and 3—parts of these were taken down immediately after the close of navigation, and will be rebuilt as early as the weather will admit of it.

RIVER RICHELIEU.

The disappearance of the ice from this river admitted of the passage of vessels through the works at St. Ours on the 9th April, and the navigation continued uninterrupted until 19th November, when it ceased.

The continuous high water in the river prevented the works which had been authorized for the security of the dam from being proceeded with; but, together with two walls for the further protection of the west side of the dam, they must be undertaken so soon as the state of the river will allow.

LAKE AND RIVER LIGHTS AND BUOYS, &c.

ABOVE LACHINE.

A contract has been entered into with Messrs. Bartley & Gilbert, of Montreal, for the construction of three iron light-vessels to be substituted for the wooden ones hitherto in use, which were so much decayed as to be past repair. The new vessels are, by the contract, to be ready on the opening of the navigation.

The several light-houses from Lake St. Louis to Lake Huron, under the management of this Department, have been kept in an efficient state during the past year, by ordinary repairs, with the exception of a few hereinafter referred to more particularly, but many of the improvements enumerated and recommended in the last report remain over for action, when the state of the finances will admit of. Several of the principal repairs however therein described to be necessary it was impossible to postpone with safety, as the effects of late storms were such as to threaten the foundation of the buildings.

The cases thus referred to are Grosse Point, where the front of the pier had to be raised and protected against the effects of the ice in passing away next spring.

McKie's Point.—Here the lake had made serious inroads upon the point of land on which the house stands, work, for the stoppage of which, and for the security of the building, could not be deferred.

Cherry Island in Lake St. Francis, Nine Mile Point, Point Peter and Gull Island, all in Lake Ontario, were similarly endangered by the action of the lake, and also the light-house on Point Pelée Island, in Lake Erie, where the waters had encroached so far, as to jeopardize the buildings, for the securing of which the local engineer Mr. Scott submitted two plans, one estimated to cost $5500 and the other $1800. By order of the late Chief Commissioner, he has proceeded with the work upon the latter estimate.

The substitution of a new basement to the Port Maitland light-house, and the work at Mohawk Island, both of which were recommended in the last report, are of course from lapse of time more called for now.

With respect to the work at the Rondeau, the undersigned have nothing to add to what is to be found in the same report under that head.

During the erection of the light-house upon Snake Island, in Lake Ontario, at the entrance to Kingston Bay, a temporary light was exhibited from the 18th April until early in August, when the new building was in such a state as to admit of the permanent light being shewn.

At the site of the light-house on Point Pelée Reef the steps taken during the past year for the further securing of the foundation, have so far been found to stand well—and instead of the mere temporary shed which had been erected and in use for the accommodation of the men attending this important light, a warmer and more suitable building has been substituted, which will fully answer the purpose for which it is intended, until such time as the settlement of the foundation will warrant the completion of the tower and keeper's house in stone.

The masonry of the several new light and keeper's houses on Lake Huron, in progress when last reported on, is completed. The period of lighting them is as follows :

Isle of Coves—	Lantern and lighting apparatus placed and adjusted—the light, which is a flashing one, was exhibited................	30th October, 1858.
Nottawasaga—	Do. do. the light, a revolving one...	30th November, 1858.
Griffith Island—	Do. do. the light, a fixed one......	27th December, 1858.
Chantry Island, *Point Clarke.*	The lanterns and apparatus on these two will be ready to have the light exhibited—(both are fixed lights)...	1st April next.
Christian Island—	Do. do. do. ...	1st May next.

The difficulty of access to (indeed the impossibility of approaching) such of the foregoing light-houses as are situated on exposed islands, materially added to the delay in exhibiting these lights to that caused by the non delivery of the apparatus until late in the year.

Progress with the works of the other light-houses proposed on Lake Huron, and referred to in the last report, has been postponed for the reasons already stated in referring to other suspended works.

The works upon Lake Huron immediately connected with the erection of the light-houses on that lake, and towards the construction of which public aid was afforded through the medium of this Department, are in a satisfactory state.

PENETANGORE *or* KINCARDINE.

The works here comprise two piers from the main land, the dredging of an inner basin, for which the locality presents considerable facility, and the effecting a good channel from the piers to it.

As in the case of Port Elgin, the cost of the work here will be in part borne by the Municipality, and part provided from the sum appropriated generally for these improvements—the work of the piers has been well executed, but they are not yet extended to a sufficient depth of water. These works will be of important advantage to this rapidly rising village and section of country.

PORT ELGIN.

The work at this place consists of a pier of about 400 feet in length with a cross head of about 110 feet.

After an examination of this place in September last, the Engineer of the Department reports the location of the pier to have been as well selected as the nature of the locality admitted of, and the work to have been well and substantially executed; it was done directly under the management of a Company incorporated for the purpose, and was subject to the superintendence and approval of an officer of this Department;—the outlay on the work will be about $10,000, towards which from the appropriation made generally for such works in 1857 and to be expended on this, was $4000, of which $3000 has been paid.

SOUTHAMPTON *or* SAUGEEN.

The works here, besides the light-house erected on the Island, consist of the breakwater adjoining the island, and a pier at the mouth of the river Saugeen They have been carried on directly under this Department.

The works of the breakwater stand well and are of great importance to the general trade, as well as to that of the port, but the benefits afforded by them would be very materially increased by adding to the height of the breakwater, by extending it, and by connecting it with the island.

The pier under contract at the mouth of the Saugeen River has been carried to the extent which the sum appropriated towards it, namely, $10,000, admitted of. The completion of the superstructure will be effected next spring.

OWEN SOUND.

The work in this river at present contemplated is confined to the dredging of a direct and sufficient channel to the centre of the town lot.

After the necessary surveying and sounding operations were completed, and the amount of dredging ascertained, the Municipality passed by-laws sanctioning the issuing of debentures to the extent of $12,000, which it is calculated will, with the $9,000 to be paid through this Department, from the portion of the appropriation reserved for this work, be sufficient to effect it.

MEAFORD.

The cost of the works of the pier at this place was also met partly from the appropriation referred to above, and partly from local funds—the execution of them was managed by the Municipality under the control of this Department. Upon a late visit of the Engineer, the works were found to have been well constructed, and to be in a satisfactory state.

THE RONDEAU.

The ruinous State of the Works of this Asylum Harbour has been fully described in previous reports, and it is to be regretted that they are still in the same condition, no decision having been since come to with regard to them, nor any appropriation made for their renewal; the observations upon them, to be found on the report referred to, are still equally applicable.

PORT STANLEY.

The works of this harbour continue in nearly the same condition as at the date of the last report, in which it was stated, that communications had been opened with the Municipalities of the adjoining counties, the Municipality of London, and with the London and Port Stanley Railroad Company, regarding the transfer of it. This project the latter named body alone expressed their readiness to entertain, and negotiations have been accordingly going forward respecting it with them, which it is expected will be closed this week, and the works placed in the hands of that Company on such conditions as will duly protect public interests.

The wrecks of the vessels sunk in the harbour have been removed.

BURLINGTON BAY.

The extra difficulties encountered in the repairs of this work, caused by the unusual high state of the lake, referred to in the last report, as having importantly interfered with their progress during the year 1857, continued in equal force during the season of 1858; notwithstanding this, however, the repairs of the north pier have been effected, although in doing so the old timbers had to be removed and the new work laid from one to two feet under water level.

A good artificial foundation (formed of piling with timber and planking thereon and bedded in concrete) for the new light-house on the beach, was laid at a sufficient depth below the present level of water to ensure its being always covered, and thus protected against decay. On this foundation a permanent light-house of stone laid in hydraulic cement, has been erected and completed in a creditable manner.

In fitting up the lighting apparatus, it was suited for the consumption of coal oil, in order to test its merits for light house purposes—so far, it is found satisfactory. It gives a brilliant and steady light, the lamps appear not to require the same trimming, as when other oil is used, and it does not congeal at the temperature that other oils do. The Superintendent reports the consumption of it to be 20 per cent less. If on further trial it maintains its character for these good qualities, considerable saving can be effected.

The superstructure of the South Pier is in so decayed and dilapidated a state, and the greater portion of it, east of the Ferry Recess, is so much exposed to the severe gales of Lake Ontario, during which the sea breaks heavily over the Pier, that its destruction may be looked on as probable the next heavy storm. The necessity for its repair therefore, as soon as possible, is urgent.

The expenditure upon this work in 1857, was as follows:

Light keeper's dwelling, store, &c	$1,760 00	
Ferry scows	520 00	
Repair to north pier	1,940 00	
		$4,220 00
1858.		
Light keeper's dwelling, store, &c	640 00	
Light house foundation, superstructure, lantern and lighting apparatus, coal oil, &c	10,479 98	
Repairs of north pier	14,700 00	
Superstructure do do	843 00	
		26,662 98
Total expenditure 1857 and 1858		$30,882 98
Appropriations towards the work, 1857 and 1858 :		
20 Vict. ch. 17	$19,720 00	
22 " " 83	25,645 00	
		$45,365 00
Balance unexpended		$14,482 02

PRESQU'ISLE.

Suitable buoys were prepared for the defining of the Old Channel, in the early part of the past season, and were placed under the direction of the Harbor Master, who has the charge of removing them on the close of the navigation, and of replacing them in the spring, or at any time that they may be displaced by Vessels or by Storms. A Steam Vessel has been procured, and is now available towards the effecting of a new direct entrance to this important Harbour, as recommended in a former report, so soon as the necessary funds are provided.

PICTON HARBOR

The Dredge Vessel, which had been proposed for the work at this place, was detained at other work near Kingston, until the season was far advanced; owing to which, together with the state of the monetary affairs, no progress has been made at Picton. The vessel is now at the spot, and ready for work on the opening of the season, should it be determined upon.

OTTAWA WORKS,

Connected with the passing of Lumber.

Full and detailed information on the state of each of the works constructed under this Department upon the river Ottawa and its tributaries, for the passing of lumber, will be had on reference to the report of the Superintendent. See Appendix Letter D.

From that report it will be seen that the working of the several slides has been efficient during the past year, in the course of which considerable necessary repairs have been effected—those which are still required to be done, prior to be break-up of the ice, are also set forth in the report of the Superintendent.

The improvements on the north branch of the Petewawa, which had been authorized, have been completed and give general satisfaction to the parties using them. As the great advantages from the improvement of this north branch became manifest, the parties lumbering on the south branch of that important river memorialized to have it also improved—the memorial states " the vast amount of benefit accruing to those who manufacture timber on the north branch from the improvement of it," and urge their claim to the improvement of the south branch; they have also expressed their willingness that a rate of tolls shall be levied sufficient to cover the cost of maintenance and interest on the outlay. This memorial being referred to the Superintendent, a copy of the report made upon the subject by that officer is hereunto appended. See Appendix Letter E.

Upon the Madawaska River a shoal or reef of rocks known as the Ragged Chute, above the slide at the high falls, has been complained of very much by the parties lumbering on that river, as causing serious destruction to their property annually in passing over it. A strong petition having been lately presented by them praying for such improvement as would remove the evil, the Superintendent was directed to examine it, and his report will be found in the Appendix Letter F. It will be seen from this report that the representations of the memorialists are fully sustained, and the improvement is strongly recommended; and should it be carried out the parties express their readiness to pay a rate of tolls fully sufficient to maintain the work and cover the interest upon the expenditure. The undersigned consider it right to add that the several works constructed on the Ottawa and its tributaries, without exception, return a most ample revenue compared with the outlay upon them, and they have no doubt but that the improvements now called for and above referred to, on the Petewawa and Madawaska, should they be effected, will prove equally satisfactory and remunerative.

PORTAGE DU FORT ROAD.

A contract for the making of the Portage du Fort Road has been entered into with Mr. Geo. E. White, of Portage du Fort, for a sum within the amount of the estimate. The works are progressing satisfactorily, and will be completed by the end of this year.

By it, the lumbering operations on that section of the river, embracing the running of all the slides from Portage du Fort to the Calumet, both inclusive, will be materially facilitated, and the cost reduced. The want of this road heretofore has added much to the expense of the transport of the lumbering supplies; arrangements, are already made to place a steamer on the river, immediately from the head of the road, when it is completed.

ARNPRIOR BRIDGE.

This bridge, on the main line of road between Ottawa and Pembroke, had been originally built in connexion with the extension of that road, the opening of which was then carried on under this Department; at that time the population in that section was very sparse; no steamer was then on the Chats Lake, and the opening of the road in question tended materially to lessen the cost of transport of the supplies to the lumbering districts.

Under the present circumstances of that country, the undersigned are of opinion that the maintenance of the bridge is incumbent upon the municipalities, and that no further expenditure should be incurred upon it through the medium of this Department.

CHAUDIÈRE BRIDGE.

The iron work of this bridge has been well cleaned and painted since the date of the last report of this Department; on a recent close examination of the roadway of the bridge, decay in the supporting timbers of it was found to have made considerable advance, so much so as to render its immediate repair unavoidable. From the injurious effects upon the timber exposed to it by the spray constantly arising from the river there, the undersigned are disposed to recommend that angular iron beams and trusses should be substituted; comparative estimates of their cost, compared with those of wood will be made; but in the meanwhile the repairs necessary for the safe passing of the bridge must be carried out.

RIVER ST. MAURICE.

Works for Lumbering Purposes.

The works conducted for the facilitating of the descent of lumber down this River have been maintained for the season in good working order and at a moderate cost. From the report of Mr. Symmes, the Superintendent of these works (see Appendix letter G), it will be seen that a considerable saving has been effected in the cost of maintenance and Office Establishment during the past year, during the course of which the works have sustained no injury beyond ordinary wear and tear. He refers to several improvements that might be effected in the works, but under present circumstances it is not desirable to incur any outlay whatever, except in repairs absolutely indispensable.

With respect to any expenditure at La Tuque, connected with the Booms to which Mr. Symmes refers, the undersigned are of opinion that such is not expedient at present: To this conclusion they are led by the confidence they place in the experience of Mr. Merrill in such matters, who made a special examination of, and report upon that part of the River St. Maurice last year, and he states that the Booms are not necessary until a Slide is built; and also, from the fact that Mr. Symmes has not yet visited that section.

SAGUENAY WORKS

For Lumbering purposes.

The purposes for which those works were undertaken and the nature of them have been explained in previous reports. The dams, seven in number, were let out by contract to Mr. Gagnon, at the Estimate of the Engineer, and were satisfactorily completed in May last.

The estimated cost of all these works, embracing the dams, slide, booms, piers, submitted to the Legislature was £10,500, towards which, the sum of £3,500 was appropriated in 1856; in the winter of 1856-57, during the low water, the contractor was authorized to proceed with the rock excavation, and the getting out of lumber for the works of the slide, it being indispensable that no time should be lost in completing it, as without it, the effect of the dams was effectually to bar the descent of lumber, and to put a stop to the lumbering operations on the River.

After the payment for the construction of the dams, the balance left of the appropriation was by no means sufficient to cover the cost of the rock excavation and of the procuration of the material above adverted to, and until a second appropriation of a like sum to the first was made, the work was suspended and the operator put to some loss; since that period the works of the slide have been pushed forward with energy under many disadvantages,—all the timber for the slide is got out and delivered—one half of the rock excavation is done, and more than one fourth of the slide is constructed. Mr. Gagnon complains of the expenses he was put to in consequence of the suspension of the work, and also, that owing to the much greater labor and costs, in getting materials, provisions, &c. to the site of the slide, beyond that of delivering them at the dams, the rates of prices for the latter will not be sufficient for the former. The undersigned however are of opinion that the amount of the Estimate will be found sufficient to cover all. It will be necessary to afford a facile route of communication from one work to the other for the use of the parties passing timber, also to erect a house for the slide master, and for the men occasionally employed, and the undersigned are of opinion that the small Saw Mill erected by the contractor for the cutting of plank and scantling for the work, should be acquired on his being done with it, as such works require annual repairs for which lumber is indispensable, and there would be no means of procuring it otherwise, except at a vast cost.

The Mill could be in charge of the slide Master, resident on the spot, who could work it when necessary, and who should be selected for his capacity to perform such duties.

PIERS ON THE RICHELIEU RAPIDS.

River St Lawrence.

These works on being abandoned by the contractor in November 1857, as stated in the last report, were proceeded with under the management of an officer of this Department, with a view of securing them against the effects of the break up of the river, the following spring ; but the season was then so far advanced it was not possible to complete them. The result has been that about 4½ feet of the top of two of the piers and part of the vertical sheeting was carried away. From the unusual height at which the waters have stood, it was considered inexpedient to continue the work the past year, and as the portion of the piers which remain is not likely to be effected by the ice next spring, no further injuries to them is anticipated, until they can be completed, and secured. For protection against the effects of the ice, the exposed parts of the cribs must be well covered with boiler plate iron.

Upon this work, including superintendence, &c. there has been paid, - - - - - - - - -	$13,527 26
Their repairs and completion is calculated at least at - -	3,060 00
Total - - - -	$16,527 26

The undersigned take leave to repeat the last paragraph in the report of last year upon this subject : " To what extent the benefits (expected by the parties whose influence obtained the appropriation) will be realised, if at all, by the erection of these piers, the undersigned will not venture to predict ; the natural forces to be contended with being many and of vast magnitude."

LAKE ST. CLAIR FLATS.

Early in the year 1855, a deputation from the Boards of Trade of Buffalo and Chicago waited upon the Government of this province, for the purpose of obtaining its aid, towards the deepening of "the flats" of Lake St. Clair; the shallow water in the channel through which, was the cause of great annual delay and expense, by the detention thereby to deeply laden vessels, involving cost of lighterage, &c.

The deputation being referred to this Department, a report was made by the Commissioners on the subject (see Appendix letter H) and in accordance with the recommendation in that report, the Provincial Government pledged itself to contribute the sum of 20,000 dollars towards the work, on conditions set forth in the report; and in accordance with them, a contract was entered into in June, 1855, for the execution of the work, by parties in the United States duly authorized to do so. By the month of October of that year, a channel was dredged partially through the shoal, reported to be about 60 feet wide and having a depth of 13 feet.

The work was inspected in November of the same year by officers connected with the United States Topographical Bureau who found the channel so dredged, had silted up about 12 inches, from its not having been opened throughout.

The progress of the work was suspended about that time, and on these officers making a subsequent examination in October, 1856, they found some further silting had taken place, and that piles, which had been driven for the protection of the ends and sides of the channel, were carried away by the ice.

In 1856, the United States Government made a grant of money towards this work, which with the use of the dredge-vessels, &c. was equivalent to about $50,000, and a second contract being entered into, the work was resumed in June 1857. In August of that year, application having been made for the sum promised by this province, the Engineer of this Department was instructed to visit and report upon the state of the channel. On his examination of the work, in the latter end of August, he was met by the contractor and the United States officers in charge of the work, from whom he received every information and assistance he required.

In his report he stated, that he found the channel dredged to be 200 feet wide by 5,600 feet in length, with a depth generally of 15 feet, the least water being 14½ feet, so that making allowance for the then height of water over ordinary low water, the channel might be considered to have from 11½ to 12 feet of water in the usual low state of the lake.

A light-house and a leading beacon, at the north-east end of the cut, were also in progress of construction by the United States, the expense of which was defrayed from a separate fund.

The idea of protecting the channel by piling had been given up, and in lieu of it, the slope of the slides was to be increased to 1 in 20, being that of the natural channel. Since it has been cut clear through the shoal, no silting has taken place, and it appears to the undersigned, that with such slopes, and the larger body of water having free course through it, the shoaling of the channel hereafter is not to be apprehended.

Mr. Page, the Engineer of the Department, while on the spot, pointed out such details as he considered necessary to be done. In November last, another examination of the work was made by Mr. Page whose report on the state of it is very satisfactory. (See Appendix letter I.)

He found the channel being carried to 270 feet in width, and that to cover the cost of the amount of dredging to obtain that breadth, and to perform the other works pointed out by him while on the spot, the sum undertaken to be given by this province would be sufficient. It has accordingly been paid. It would appear that the United States contemplate still further increasing the capacity of this channel, which will be of material importance to their trade as well as to that of Canada.

CANADIAN STEAM COMMUNICATION WITH THE LOWER PROVINCES.

In consequence of a communication received by His Excellency the Governor General of this Province from the Lieutenant Governor of the Province of New Brunswick, dated Frederickton, 5th March, 1858, respecting the establishment of a system of steam communication between Canada, Nova Scotia, Prince Edward's Island and New Brunswick, for the purpose of facilitating postal arrangements and trade and intercourse between these several provinces, the granting of an appropriation was recommended to the Legislature at its last session, and the sum of $10,000 per annum was granted towards this service on the part of Canada, with the view of its being continued for three years from the time the service should have been entered upon.

On the authority of an order in Council of 10th April last, an engagement was made with Mr. Baby, who had at command the only boat suited for the service, to establish steam communication between Canada and the Lower Provinces, by making at least two trips per month from Quebec.

Under this engagement the iron steamer "Lady Head" was placed on the line early in the month of June, since which time the trips have been regularly made.

A contract based on this engagement and to continue three years, dating from 1st June last, was, under the authority of an order in Council, concluded with Mr. Baby. The subsidy being the amount of the appropriation, and to be paid in two instalments---one on the first of August and the other on the 1st of November of each year.

The establishment of this line has been very favorably received, and there is no doubt but that it will conduce importantly to the attaining of the benefits expected upon its being undertaken.

CANADIAN OCEAN STEAMERS.

The admirable manner in which the service under this head has been performed, during the past season, is so well understood, as to render it unnecessary to make any detailed report upon it. In the Appendix letter K. will be found a table, furnishing the dates of departures and arrivals—length of voyages—number of passengers, and the cargoes carried by this line of steamers to and from the St. Lawrence, for the year 1858. The performance of the duty to and from Portland has been equally prosperous and satisfactory.

TUG SERVICE BETWEEN LACHINE AND KINGSTON.

No complaints whatever have been made, during the past season, against the manner in which this service has been performed, by any party interested in having it efficient. From this, the undersigned conclude that it has been satisfactorily performed, and the conditions of the contract fairly carried out.

TUG SERVICE BELOW QUEBEC.

The arrangement with the contractor having assumed a variety of phases from time to time since the contract was originally entered into, the undersigned consider it necessary to advert to the subject generally on this occasion.

The necessity for the establishment of this towage line was impressed strongly on the Government by several parties deeply interested in fostering the trade of the province: they represented that notwithstanding the large outlay on the construction of a series of canals, but a very small proportion, comparatively, of the Trade of the West,for the transit of which this expenditure was incurred, has been diverted into it from the American routes, notwithstanding the great natural advantages of the former—this was reasonably attributed to the excessive rate of freight from Quebec to England over that from New York.

It was naturally and confidently assumed that an important reduction of freight charges from the St. Lawrence would be ensured by the establishment of an efficient line of tug-vessels, through the means of which, the delays and risks in the navigation below Quebec, would be, to a great extent, avoided, cost of insurance lessened and the rate of freight proportionately reduced.

The project being submitted to and approved of by the Legislature, an appropriation was made towards carrying it into operation. Tenders were called for by public advertisement, and that by Mr. Baby was accepted, being the lowest and most advantageous.

Upon entering into a contract of this nature, in the absence of any experience or previous data from which the proceeds or revenue of the towage to be performed under it could be calculated on with any, even a remote degree of confidence or safety, both parties were, necessarily, much in the dark.

The Contractor, on the one hand could with certainty reckon up the cost of outfit, maintenance, insurance &c, but was enable to guess only very vaguely at what the returns from it might be beyond the bonus to be paid him.

So, on the other side, the government was equally without the means of determining what the extent of reasonable aid or bonus to be given should be, or to decide as to the number, description and power of the vessels which they should require the Contractor to place on the line.

The difficulties arising from this uncertainty were soon felt. Instead of the class of vessels first required by the Contract, namely, wooden paddle wheel vessels of but comparatively small power, it was ascertained that in order to obtain the object in view, it was indispensable that a much more powerful description of vessels should be put on the line.

The Contractor suffering from the small demand for the services of his boats, and the consequent limited receipts therefrom made, in the year 1856, a reduction in the authorized schedule of rates, and in 1857, the Board of Trade of Quebec, under the impression that if time was given for the full developement of the benefits to be had from the employment of the Tugs in the lessening of risk and delay and of insurance, the underwriters, merchants and owners of vessels, would find it their interest largely to avail themselves of towage, represented to the government the expediency of having a large reduction made in the Tariff for a few years.

Upon such representations the government was induced to make an arrangement with the Contractor (by an order in Council 16th June, 1857) whereby in consideration of his making certain specified reductions in the rate of the Contract Tariff, this Department was authorized to make him compensation by a certain percentage, on the amount of the work performed.

The contractor has not only made the reduction specified in the order in Council, which averaged from 30 to 50 per cent, but found himself under the necessity of making a uniform reduction of 50 per cent throughout.

Notwithstanding this, it is to be regretted that the Shipowners availed themselves, either in the years 1857 or 1858, only to a limited extent, of the Tug Vessels.

The undersigned however cannot but believe that the time is not far distant when the important benefits to the trade of the St. Lawrence, which this line is capable of ensuring, will be perceived and duly appreciated by the underwriters, merchants and others.

PIERS BELOW QUEBEC.

These piers are generally in a good state of repair, no outlay on any of them has been required during the past year, except on that of Malbaie; there a small expenditure was necessarily incurred upon the more effectual protection of the outer end against the action of the sea.

As repeatedly reported in reference to these works, it is desirable that a person should be put in charge of each, to guard against the risk of injury by fire or otherwise—fires have been frequently lighted close to some of them, and in more than one instance upon the pier itself. A small toll might be authorized to be exacted from parties availing themselves of the pier, from which the person in charge might be paid.

LIGHT HOUSES BELOW QUEBEC.

The several Light Houses undertaken by this Department, in the Gulf of the St. Lawrence and Strait of Belleisle, have been fully completed, the lighting apparatus fitted up and duly tested, and each station fully equipped with the necessaries for their maintenance and repair. Keepers trained to the management of the machinery of the revolving or flashing lights and the use of tools for repair in case of accident, have been appointed.

After trial, the respective lights were first exhibited for the purpose of navigation in the early part of the past year.

Their superintendence and management has been lately transferred, by order of the Government, to the Trinity House of Quebec.

With respect to the several other Light Houses stated in the last report of this Department, to be much required for the safe navigation of the River and Gulf, the proper site for each has been determined upon, but owing to the state of the finances no further action has been taken.

It is highly desirable that progress with the two first class light houses, one in the vicinity of Cape Ray, on the south-west point of Newfoundland, the other on the coast of Labrador, in the neighbourhood of Cape Whittle, as well with the two or three of the less expensive houses between Quebec and the Saguenay, all recommended in previous reports, should be authorized as soon as possible.

GROSSE ISLE—QUARANTINE STATION.

The expenditure at this station the past year was £771 5 5, in this sum is not included the cost of the establishment, &c., but merely the outlay under this Department upon sundry repairs, &c., referred to in the last report—taking down temporary sheds and converting the materials to other purposes—providing a dwelling for the Police and their families—a residence for the Steward—a kitchen for the Medical Superintendent—general repairs to roofs—laying down drains, &c.

The charter of a Steamer, at the cost of $5000, for the conveyance of Emigrants, forms another item connected with this service. The Superintendent reports an expense of not less than $3242 will be requisite this year upon the repairs of the sundry piers, and of the hospital, sheds, dwellings, &c., on several of which it is not long since outlay had been incurred.

The undersigned consider the constant and heavy sums that are represented annually to be required on this Island are much to be regretted. No doubt, the very inefficient and temporary character of many of the buildings and the hurried manner in which they were put up, would appear in some degree to account for such constant outlay, but prior to any expenditure this year, it is proposed to make a close examination as to the necessity and nature of every item of repair or alteration called for, so as to put a stop, as far as possible, to this drain of public money.

TEMISCOUATA ROAD.

The works of this Road have been for some time wholly suspended, in obedience to an order given to that effect in September last by the then Chief Commissioner, in consequence of its being ascertained that extra work, not embraced in the original Engineer's estimate on which the contract was based, had been done to such an amount as to leave the balance of the sum voted for the making of the Road wholly insufficient to accomplish it.

The directions to stop the works were conveyed in a letter to the Superintendent intimating " that it was the intention of Government to close the " contract with the present contractor : You (the Superindent) are therefore " to inform the contractor of that intention and to see that no more expendi- " ture is incurred until further instruction."

Upon being apprised of this decision, the contractor called for a settlement in full and to be paid for all the work done, as follows :

Total value of work claimed under contract......	£14,853	5	3
Amount of extra certified by Superintendent......	7,401	18	11
Total value of work done	£22,255	4	2
Amount paid........................	20,278	0	0
Balance claimed............	£ 1,977	4	2

The whole matter is now under the consideration of Government.

It is very desirable that some decision should be come to as to the finishing of the Road. From the character of the country through which it passes and the nature of the soil, if the works are left as at present for any length of time, they will suffer material deterioration, the security of some of the structures will be jeopardized, and the ultimate cost of completion much increased.

MATAPEDIA ROAD.

This road is divided into two sections, the north and south.

The former lies all within the County of Rimouski, and extends from the St. Lawrence, near St. Flavien, to the south end of Lake Matapedia.

For the first fourteen miles, the route is a new one, judiciously selected by Mr. Baillargé, and much more favorable as to grades than that portion of the old Kempt Road, for which it is a substitute : For the remainder of the route to and along the lake, the line follows the Kempt Road in many parts. No appropriation has yet been made for this work, which has therefore not been commenced, but as the works of the south division are progressing rapidly, it is very desirable that the work of the north division should be undertaken as soon as possible, so that the communication may be opened throughout.

Of the south division, a part, that between Lake Matapedia and the line dividing the Counties of Rimouski and Bonaventure, lies in the former County, the remainder is in the latter County, and terminates on the Bay of Chaleur.

Where the grades &c., of the Kempt Road rendered it advisable so to do, the line of it was adopted, but the greater portion of this south division consists of new road. The works were laid out by Mr. Lefebre, and let in small section to parties in the vicinity, and his management of it has been economical and judicious—about 7 miles of the most difficult and expensive portions are completed, and 2 miles more are in a passable state; on these parts, were embraced the heaviest cuttings and retaining walls, and upwards of 1608 lineal feet of bridges have been built.

On the parts of the Kempt Road that have been followed, the bridges are stated to be in a very bad state, but the Superintendent strongly recommends that the opening and forming of the road throughout should be effected, before outlay is incurred on the repairs of the bridges.

The land along the road is represented to be of good quality, and well adapted for settlement, which, since the improvement of this communication has been undertaken, is rapidly taking place. In fact, as the works of the road extend on from the Bay, population follows immediately in their wake.

GASPÉ ROAD AND MATANE AND CAP CHAT ROADS.

The former road may be looked upon but as the extension of the other, and the entire may be divided into two divisions, the Eastern and the Western.

The Eastern Division is that portion within the County of Gaspé projected from the Gaspé road (formerly made by government, and terminating in the eastern settlements of Gaspé), to run west on the north side of the County, until it meets the Western Division, commencing at Matane and running eastward along the St. Lawrence.

With this, the Eastern Division, no progress has yet been made, some difference of opinion existing as to the best line to be adopted for it, and that on which the sum appropriated should be expended.

According to the division here made of this road, the Western Division is that lying within the County of Rimouski, and hitherto has been known as the Matane and Cap Chats road.

The works of this road are under the management of Mr. Alex. Fraser, and their progress has been very satisfactory the past season. The greater proportion of the bridges are built. A large number of the small sections in which the line was divided for letting has been completed, and others are in progress.

The works could have been much more advanced the past year, was it not for the expediency of restricting expenditure as much as possible.

Four of the wooden bridges were destroyed by the great fire which raged there, but their rebuilding will be completed by May next, so as to allow of the ordinary travel over the road: To guard against a recurrence of such a casualty, the wood has been cleared away for some distance on both sides of the bridges.

To complete this road an additional appropriation of $6,000 will be necessary.

GRANDE BAIE AND MALBAIE ROAD.

The line and object of this road have been described in a former report, The season was far advanced before the works were resumed the past year, but since then they have progressed satisfactorily, and Mr. Paschal Bouchard, under whose direction they are carried on, would appear to have arranged them very judiciously and economically.

For detailed information as to what has been effected, and the sum expended the past year, see Appendix letter L.

PUBLIC BUILDINGS.

COURT HOUSES AND JAILS.

MONTREAL COURT HOUSE.

This building is completed and in charge of the Prothonotaries. An expenditure was incurred during the past year of about $1000 in adding to the means of heating the most distant portions of it.

MONTREAL JAIL.

The inadequacy of this Jail, as well of all the others in Canada East, has been fully represented in the several annual reports made by this Department. These buildings may be said to be wholly deficient in every essential of a proper Jail, whether as regards heating and ventilating, and the health, safe keeping, classification and reformation of the prisoners.

The late Act 20 Vict. cap. 28, having provided for the appointment of a number of Prison Inspectors, a portion of whose duties will be to inspect and report upon the state of the Jails generally, and to submit plans and suggestions for such ameliorations, as, in their opinion, are required for their better construction and management, but little expenditure has been incurred upon them by this Department during the past year, and that little has been confined to such repairs as were urgent. No outlay has been made upon the Montreal Jail in 1858, the several additions and improvements, the necessity for which has been so often set forth by this Department, will no doubt receive the early attention of the Prison Inspectors.

AYLMER COURT HOUSE AND JAIL.

The amendments to this building, the necessity of which was stated in the presentment of the Grand Jury for the District, have not been undertaken by this Department, no funds for that purpose having been placed at its command. They remain therefore for the action of the Prison Inspectors.

During the year 1858 a sum of about 500 dollars was expended in the liquidation of an outstanding account for the heating apparatus, which as it did not work well when first constructed, the account was not paid until some alterations were made.

THREE-RIVERS JAIL.

A trifling expenditure upon general repairs was incurred on this building early in 1858, and towards the close of that year it was found necessary to enter into contract for the re-tinning of the roof which will involve a cost of about $500.

SHERBROOKE COURT HOUSE AND JAIL.

From the very delapidated state of these premises, authority was given to this Department for the repairs most pressing, which will be completed by the first of June next at a cost of about 3200 dollars.

QUEBEC JAIL.

Some small expenditure has been incurred the past year upon the drainage for this building. The site for the intended new Jail has not yet been decided upon.

NEW JAILS AND COURT HOUSES.

Under the new Judicature Act applicable to Canada East (20 Vict. cap. 44) twelve new Districts have been set off, to wit:

	DISTRICT.	CHEF-LIEU.
1.	Terrebonne	St. Scholastique,
2.	Joliette	Industrie,
3.	Richelieu	Sorel,
4.	Saguenay	St. Etienne de la Malbaie,
5.	Rimouski	St. Germain de Rimouski,
6.	Montmagny	Montmagny,
7.	Beauce	St. Joseph de la Beauce,
8.	Arthabaska	St. Christophe,
9.	Bedford	Nelsonville,
10.	St. Hyacinth	St. Hyacinth,
11.	Iberville	St. John,
12.	Beauharnois	Beauharnois,

by a subsequent Act 22 Vict. cap. 5, the District of Saguenay was divided and a new one created, namely:

13.	Chicoutimi	Chicoutimi.

The first named Act required that the respective municipality of the County in which the chef-lieu was situated should select and furnish a site free from all encumbrances on which the Court House and Jail was to be built. Such site to be examined and reported upon to His Excellency the Governor General for approval by this Department. Most of the sites have been accordingly so fixed on, and authority was given to this Department to advertise and receive tenders for the erection of these buildings, upon an uniform plan prepared in this office.

As usual, very great discrepancy of price was exhibited in the tenders sent in, the lowest of which for all the buildings, that of Messrs. Sinclair & Skelsy, was, under due authority accepted, and the contract is on the eve of being entered into.

This contract provides that each building shall be completed on or before the 31st of August, 1860, or within eighteen months after the contractor is put in possession of the site.

The plans, it is believed, will be found to afford as many of the essentials for proper prison discipline as the limited sum appropriated would admit of; the amount available for each has been appropriated in the manner most conducive to the best internal arrangement of the buildings, and where omissions have necessarily been left, they relate principally to external work, which can subsequently be done by and at the charge of the respective municipality as provided for by the Act.

CUSTOM HOUSES*.

CUSTOM HOUSE, QUEBEC.

In consequence of the difficulties stated at length in former reports of this Department, and in obedience to an order in Council to that effect, the works of this building had been suspended in January, 1857. They were resumed in the latter end of September, 1858, under the authority of a letter addressed to the contractor by the then Chief Commissioner, containing the condition that certain claims made by the contractor for losses represented as having been sustained by him in consequence of the stoppage of the work, non-paymentof his estimates, &c., should be left to the sole settlement of the Engineer of this Department, to which the contractor conveyed his assent.

On the 2nd December following, in obedience to instructions given by the Chief Commissioner to that effect, the Engineer made an examination of, and report upon the state of the works, accompanying it by a debit and credit statement, showing the sum which, in his judgment, the contractor was entitled to receive on account of such claims.

The amount demanded by the contractor was £5,561, that adjudicated by the Engineer to him £3,937 2s. 1d.

The report goes to show that the work done is of a very superior character in all respects, and the materials provided for its completion unexceptionable. Some injury had been done by the weather to the brick work during the suspension, the reparation of which is provided for in the settlement proposed by the Engineer.

The artificial foundations necessarily put in, at much expense, have proved, so far, perfectly stable ; and, it is expected, the whole building will be completed by next September.

The extra work rendered necessary by the nature of the foundations, &c., and already done and paid for, amounts to £8,954 3s. 7d., in addition to this sum the Engineer estimates other extra work, indispensable in his judgment, (after making reduction for work to which the contractor was bound, but which may be omitted) at £1,121 4s. 6d., making the cost of the necessary extra work upon the building amount to £10,075 8s. 1d. If to this sum be added £3,937 2s. 1d. awarded by the engineer to the contractor for losses sustained by him, arising from the suspension of the works, it will appear, that the aggregate amount of extras and compensation will be £14,012 10s. 2d. beyond that provided for by the contract.

MONTREAL CUSTOM HOUSE.

The inadequacy of this building has been strongly and repeatedly urged by the Collector of the Port, and has also been represented in former reports by this Department. The undersigned have nothing to add to the observations upon this subject to be found in the report of 1856, further, than that the encreasing revenue of the Port demands enlarged accommodation at as early a period as possible.

TORONTO CUSTOM HOUSE.

A sum of about $300 has been expended during the past year upon some small alterations, and the general cleaning and partial painting of the building.

KINGSTON CUSTOM HOUSE.

This edifice is completed and is now fully in use for the performance of the duties of the Port. The lot has been suitably enclosed. Some moisture in the attics is complained of—which arises from their sufficient ventilation not having been provided for—an outlay of about two hundred dollars will remove this evil, and prevent any damage hereafter to the pipes of the portico which have been injured by the action of the frost.

HAMILTON CUSTOM HOUSE.

Since the date of the last report, tenders have been received for the erection of this building, and the lowest, that of Mr. Murison, a contractor of great respectability, was accepted.

Some extra expenditure had to be incurred in putting in the foundations, found to be necessary upon excavating to the subsoil; this extra expense will be more than covered by dispensing with the stabling and some other outbuildings originally contemplated. The basement walls are up to the ground level, and have been well secured from frost, until the masonry is resumed in spring. Considerable progress is being made in the preparation of the cut stone, joiners' work and other materials, and there is little doubt that the building will be completed within the time stated in the contract, namely the 31st October of this year.

POST OFFICES.

QUEBEC POST OFFICE.

No action has been taken towards the erection of this building since the last report.

MONTREAL POST OFFICE.

A small expenditure has been incurred to afford increased facilities for the operations of the money orders and registration offices.

KINGSTON POST OFFICE.

This building recently completed has been handed over to the proper authority. The Post Office Inspector of the division has made a requisition for sundry fittings and requirements necessary to carrying on the business of the office, which were not embraced in the contract for the building; the cost of these, it is expected, will be covered by the balance of the appropriation remaining unexpended.

TORONTO POST OFFICE.

A small outlay has been incurred in repairs and some trifling alterations.

HAMILTON POST OFFICE.

The roof of this building has undergone some partial repairs. Improvements and alterations have also been effected to the drainage, ventilation and heating. The Superintendent reports that a more thorough repair of the slated roof will be requisite in spring, and also that the porches and double doors to the public and private entrances, applied for by the Postmaster, are much needed; as well as certain precautionary works against fire, where the hot air flues pass near the wood work.

These requirements being obviously desirable on the score of economy in heating, and for the safety of the building, it is proposed to insert in the estimates a sum necessary to cover their cost.

LONDON POST OFFICE.

The erection of this building has been contracted for by Mr. Elliott, a contractor of experience and high standing in that section. Satisfactory progress has been made up to the closing in of the winter, against the effects of which, on the fresh masonry due precautions have been taken. All the cut stone, ashlar and joiners' works are being prepared for an early resumption of building operations in April next; the period for its completion is the 1st November of this year.

GOVERNMENT HOUSE AND PUBLIC OFFICES.

TORONTO.

The expenditure during the past year on all those buildings has been so trifling and confined to matters of minute detail and ordinary repairs, it is not considered necessary here to enter into the particulars. The Public Accounts will show the amount and nature of the expenditure.

The creation of the Railway Board and its staff caused a necessity for providing accommodation for the discharge of the duties connected with it, the expenditure involved therein being five hundred and twenty-five dollars.

NORMAL AND MODEL SCHOOLS, QUEBEC AND MONTREAL.

The observations under the preceding head apply equally to this.

MARINE HOSPITAL, QUEBEC.

The works of this building are now approaching completion. The new wing is nearly finished, the addition has been made to the lot and its enclosure effected. The reconstruction of the wharves connected with the premises is well advanced. The bodies which had been interred from time to time about the Hospital, have been exhumed and re-interred. The old and insufficient shed formerly used as a fever hospital has been taken down and replaced by a more suitable building.

The foregoing works had been estimated for on the principle of their being executed by contract, and an appropriation made accordingly; but owing to the great distress which prevailed among the laboring classes in Quebec last winter, a portion of the work was done by day labor, and the cost thereby increased, on which account a further sum of about 5000 dollars will have to be appropriated.

GUN SHEDS.

An expenditure, in the aggregate of about one hundred dollars has taken place in the gun-sheds at Quebec and at Toronto during the past year.

On that at Hamilton, the sum of about fifteen hundred dollars was paid the same year; of this, about eleven hundred and four dollars was for the purchase of the lot, and the remainder chiefly expended on sundry works connected with the fitting up of the harness-room, introducing gas, and putting iron bars to the windows for the safe keeping of the arms, &c. These works were completed late in 1857, but the cost of them appears in the accounts for 1858.

TORONTO BARRACKS.

Sundry works have been performed under this Department connected with this property, which under the terms of the transfer of certain ordnance property by the Imperial Government to this Province, has to be kept in efficient repair by the latter. The expenditure has chiefly been upon the repairs of the road and foot-way leading to the barracks, upon the opening and clearing of the drains, emptying the cess-pools, removal of the privies and the erection of others, in a position less obnoxious than that upon which the old ones stood. The aggregate of this outlay has been about 2197 dollars.

LEGISLATIVE BUILDINGS, TORONTO.

The cost of the works executed immediately before the last session of Parliament is necessarily brought into the accounts of 1858. It amounts to 1106 dollars and cover the expenditure upon the securing and repairing the roof of the building generally, which had been in a very dangerous state, the repairs and the re-ceiling of the Assembly Hall and Legislative Council Chamber, the securing the reporters' galleries, certain improvements towards the better ventilation of the building, some new carpetting, &c.

In the course of the year 1858, the furnaces have been altered to meet the requirements of the Companies with whom insurances have been effected. The drains also have been opened, enlarged and repaired The additional accommodation contingent upon the increase of the Legislative Council has also been provided, together with the necessary fittings, &c., and provision made for the convenience of the reporters. The cost of the works during the year 1858 will amount to the sum of 9918 dollars.

LUNATIC ASYLUMS.

Upon the Toronto temporary female branch of the Provincial Lunatic Asylum, an expenditure of 96 dollars has been incurred during the past year, chiefly upon the raising of the chimneys, to improve their draft and upon some ordinary repairs.

CRIMINAL LUNATIC ASYLUM, KINGSTON.

The site for this building has been acquired, and the plans prepared; as the carrying out of them would materially affect an adjoining property, it was considered advisable to delay the prosecution of the work until a satisfactory arrangement could be entered into, a delay rendered the more expedient by the state of the finances.

The stone buildings, which were upon the property, on its being purchased, have been appropriated to the accommodation of the Medical Superintendent, and as a prison for a limited number of female criminal lunatics; thereby, so far, relieving the overcrowded portion of the penitentiary for this class of prisoners.

SUNDRY PROVINCIAL PROPERTIES, QUEBEC.

THE SEWELL PROPERTY.

The premises, known under this name, consist of a house and lot on the Esplanade adjoinining the Royal Engineer's Office. It was purchased for the purpose of being converted into a Nautical School building. This project was abandoned, and the house which is in a business state is now made use of by the Volunteer Corps of Quebec. In the rear of it, a large stone building was erected as a gun shed, harness-room, armory, &c., for the Quebec Volunteer Artillery. It has been already referred to under the head of "*Gun Sheds.*"

CHATEAU ST. LEWIS.

This building is at present occupied by the Quebec Normal School. It is in a good state of repair. Some expenditure was incurred during the past year upon the repairs of the out-offices.

THE BONNER PROPERTY

Was acquired as a site for the new Jail proposed to be erected in lieu of that now occupied within the walls of the City, the situation of which is most objectionable, and the building itself and the lot on which it stands utterly insufficient and incapable of being transformed so as to afford suitable Jail accommodation.

A large amount (5600 dollars) is represented by the Superintendent of Public Buildings in Quebec as necessary to be expended upon its repair, which the undersigned, however, consider would be a wasteful outlay.

The Bonner property consists of a farm of about 38 acres, with two houses thereon; one of these with the farm is let for the sum of $240 a year, and the other house is leased at $100 per annum.

The military authorities having (as stated in a former report) raised objections to the erection of buildings on this property, as tending to interfere with the defences of the citadel, the commencement of the works of the Jail was suspended, in expectation that long ere this an interchange of property would be effected—this has not yet taken place.

An expenditure of about $100 had to be incurred upon the repairs of he fences.

SPENCER WOOD.

From the length of time the Government House on this demesne remained unoccupied, and from the temporary character of most of the building, considerable mischief to it was caused by damp, by the closing of the drains and other causes.

Some repairs were effected prior to the late visit of His Excellency the Governor General to that section of the province; but the premises stand in great need of a thorough repair and cleaning up, embracing securing of the foundations, staunching the roof, general painting, &c. &c.

QUEBEC OBSERVATORY.

But a trifling expenditure has taken place in this building the past year.

SURVEYS.

An annual appropriation for expenditure under this head has been made for several years past. In the asking for and the granting of them originally, several beneficial objects were proposed,—one of the chief, being, the acquiring of such reliable information, surveys, plans, estimates, &c. as would enable the Government to form a safe opinion as to the practicability, cost or necessity of the various projects urged upon their attention from time to time, and so direct them as to the expediency or otherwise of recommending to the Legislature the granting of the supplies necessary to carry them out.

There can be no question as to the soundness of this course, but unfortunately of late years a practice has obtained in the Legislature of making appropriations for works, in many cases of a local character, and of the necessity, practicability or probable cost of which no reliable or sufficient information whatever had been previously obtained. In fact, in several cases those appropriations have remained a dead letter, in consequence of its being found, on subsequent examination, that the works for which they were granted, were not practicable nor deserving of being taken up.

The state of the finances necessarily puts a full stop for the present to the continuing of this evil system, which it is to be hoped will not be resumed.

The chief outlay under the head of survey during the past year, has been confined to the Ottawa section of country and to the exploration for some lines of road in the remote eastern section of the province.

In consequence of the several appropriations being exhausted, which had been made to meet the costs of the survey instituted with the view of ascertaining to what extent the chain of waters by the Ottawa and French River from Montreal to Lake Huron could be improved and made available, upon a suitable scale, for the trade of the West, through Canada, the operations of the survey were suspended and the establishments broken up. The amount expended thereon was £15741 8 10.

A further sum of £5000 having been voted last session for its prosecution, the survey is again in progress. The multiplicity of Mr.

Shanly's engagements, preventing his continuing to direct it, the extent to be surveyed, (or rather explored and examined—continuous survey not being necessary) was divided into three sections—the west, and much the most important section, namely from the mouth of the French River, Lake Huron to the mouth of the Matawan, was entrusted to Mr. T. C. Clark, a gentleman of high reputation and much practice—the second, from the mouth of the Matawan to Portage du Fort was allotted to Mr. Perry, a gentleman who had been engaged upon the works of the Chats Canal under the Contractor, and the third, from Portage du Fort to Lachine, to Mr. Gallwey—who was resident engineer on that work while in progress—and was subsequently engaged upon the survey, &c., requisite to determine the best mode of overcoming the obstructions in the navigation, between the city of Ottawa and the Chaudière Lake.

It was necessarily late in the year before these parties received their instructions, and were authorized to proceed with the duties entrusted to them.

On the 20th of November last, Mr. Clarke started from Collingwood for the scene of his labors. From his report (see appendix letter M,) it will be found that, by energy and a capacity to endure fatigue of no ordinary character, he has been enabled to accomplish a great deal in the comparatively short time from his setting out to the date of his report. He has fully determined the character and capabilities of French River, from Lake Huron to Lake Nippissingue, he has made surveys and taken soundings, and levels of all the portions of it, where such were required for the general object in view—devoting no time unnecessarily to minute detail. He also traversed on snow-shoes, accompanied by two Indians, the whole circuit of Lake Nippissingue (some 200 miles) and satisfied himself as to the form of that Lake (of which no previous Map gives anything like a remote semblance) the nature of its shores, the variation of the level of its waters between the high and low state of the Lake, and the practicability or otherwise of maintaining them at a level much over that of its natural high water mark, which is about 6 feet above ordinary low water.

Prior to the commencement of their operations the gentleman having charge of each division was required to send in a statement of the numbers of the party (and their respective duties) which it was proposed to be engaged. The number returned by Mr. Perry it was considered expedient by the then Chief Commissioner to reduce about one half, and the Instruments allotted to and in possession of it being much greater than those with Mr. Clarke's party, it has not been considered necessary to incur the cost of purchasing the extra instruments called for by Mr. Perry's requisition of 11th last November, nor to authorize the increase of his party beyond the number dictated to him by the communication of the late Chief Commissioner.

The undersigned, concurring fully with Mr. Clarke, as to the inexpediency and unnecessary cost of taking soundings through the ice, in which a hole has to be cut for every sounding taken, and agreeing with that gentleman that the passing of a float or batteau in an open state of the River, having sounding rods attached to it, is a more practical, certain and economical mode of detecting any rocks or shoals that may exist in the channel, have signified to Mr. Perry their opinion as to the uselessness of continuing the cost of sounding by boring through the ice.

The progress made with the survey of the division entrusted to Mr. Gallwey has been judicious and satisfactory. On working up to the northern end of his division, finding that the ground had been already gone over, and all the necessary examinations made by Mr. Norman, who had been engaged, under this department, on a survey of that section of the River for purposes connected with the establishment and letting of hydraulic powers, disposal of Islands not required for public purposes, &c., Mr. Gallwey reported that he considered it would be unnecessary for him to do again what Mr. Norman had done. Upon this Mr. Gallwey was instructed to proceed with the examination (and survey where necessary) of the river from Ottawa to Lachine, taking early occasion to examine, determine and report upon the nature and sites of certain improvements, represented and known to be very desirable, although not involving much outlay in that section of the River. Those more immediately referred to, are :

A floating or other light at the " *Balture de la Grande Ance*," about two miles below Pointe Claire.

A similar light at the crossing opposite " *Pointe Valors*," on the north side of the Chateauguay shoals.

A pier and stationary light on " *Green Shoal*," about nine miles below the city of Ottawa, and other lights or beacons in that part of the river.

Another important survey, connected with the River Ottawa, has also for some time been carried on by the direction of this department, and under the immediate management of Mr. Norman ; to this survey reference has been made a little preceding.

According as the water powers, most contiguous to Ottawa and other populous places were disposed of, applications were received for others, and many offers also made to purchase various Islands in the river, the names, positions, areas and values of which had not been previously defined nor known, and the sale of them has been heretofore suspended, lest their disposal might interfere with the subsequent improvement of the River.

It became of importance that an authentic survey of these Islands should be made, and levels taken to determine the positions and extent of the water power that might be established and the best mode of doing so.

All this Mr. Norman has accomplished in a short time and in a very economical and masterly manner, and he has also so conducted his survey, and compiled the Maps of it, as to render both largely conducive to the end for which the survey for navigation purposes was undertaken.

As the present duties of Mr. Norman, connected with the superintendence of the works of the Portage du Fort road, would not occupy all his time, the undersigned considered it advisable to direct him to continue the survey from the termination of his previous one, near the " *Sables Rapids*," through the "*Rocher fondu*" channel, to its junction with the main branch of the River, and so to conduct it, that it can be readily joined on to by Mr. Perry with his survey of the main River.

For information as to the progress made with the survey of the middle division under Mr. Perry, see that gentleman's reports, (appendix letters N and O)—and on the lower division under Mr. Gallwey, that gentleman's reports (appendix letters P and Q).

For details of the result of the survey for hydraulic and other purposes under the management of Mr. Norman already referred to, see his report (appendix letter R).

Upon the completion of the surveys of the respective sections, the undersigned are of opinion that it will be necessary to place the result of the entire in the hands of one gentleman, to make a general and comprehensive report.

All which is respectfully submitted,

JOHN ROSE,
Chief Commissioner Pub. Works.

H. H. KILLALY,
Ass. Commissioner of Pub. Work.

No. 1.

Statement of the several Public Works under charge of this Department, which are in use and yield Revenue, showing the expenditure under the different heads during the year 1858, viz., on construction, on cost of repairs and management, the sums paid for land or property acquired for use of the works, and the amount paid for damages, the nett revenue collected from each with the cost of collecting it. Also, the total cost of construction under this Department to the 1st January, 1859.

NAME OF WORK.	Expenditure on construction during 1858.	Cost of repairs and management during 1858.	Land acquired for use of works during 1858.	Amount paid for damages during 1858.	Total expenditure on construction to 1st January, 1859.	Nett Revenue during 1858.	Cost of collecting revenue during 1858.
Canals.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Welland	82,099 11	104,695 97	300 00	471 00	4,458,498 53	208,361 30	6,784 37
St. Lawrence Canals, viz :							
Lachine	11,318 14	22,607 62	....	....	1,985,825 51	53,792 04	11,274 58
Beauharnais	....	17,744 91	....	34,652 45	1,572,153 98	605 09	829 88
Cornwall	5,306 44	19,370 31	....	....	457,766 96	183 04	625 56
Williamsburg	46 50	9,093 10	....	....	1,089,719 93	106 54	1,125 00
Junction	....		....	....	211,231 33		
Chambly	....	12,599 26	....	....	67,453 25	11,276 68	1,628 13
St. Ours	....	1,694 91	....	100 00	122,927 65	299 33	400 00
St. Anne's	3,219 17	959 05	....	....	110,975 75	4,907 41	627 08
Burlington Bay Canal	25,962 98	....	....	....	267,171 10	13,790 89	800 00
General Expenditure	115 75	....	....	....	73,730 22	....	....
Slides and Dams.							
Ottawa	66,687 93	13,028 87	....	....	569,175 88	27,935 79	1,000 00
St. Maurice	9,712 10	7,985 31	....	....	241,516 53	1,746 29	....
Trent	....	1,050 98	....	978 05	....	2,299 30	603 55
Harbours.							
Port Stanley	....	770 00	....	1,000 00	215,171 70	3,200 04	....
	204,468 12	211,600 29	300 00	37,201 50	11,443,318 32	328,503 74	25,698 15

No. 2.

Statement of the several Public Works under charge of this Department, incomplete and unproductive, but on which Tolls are to be levied when the works are in an available state, showing the Expenditure thereon during the year 1858, viz., on Construction and on Repairs and management, the amount paid for damages, and the total expenditure under this Department to 1st January, 1859.

NAME OF WORK.	Expenditure on construction during 1858.	Repairs and management during 1858.	Amounts paid for damages during 1858.	Total Expenditure to 1st January, 1859.
	$ cts.	$ cts.	$ cts.	$ cts.
Chats Canal	19,844 07	....	....	263,432 65
Scugog Inland Navigation	14,540 40	523 74	1,600 00	93,844 22
Saguenay	14,467 07	....	....	22,630 70
	48,851 54	523 74	1,600 00	379,907 57

No. 3.

Statement of non-productive Public Works and Buildings under charge of the Department of Public Works, shewing the amount expended thereon during the year 1858, and the total outlay upon them up to 1st January, 1859.

WORKS.		Expenditure during the year 1858.		Total outlay up to 1st January, 1859.	
		$	cts.	$	cts.
Parliament Buildings	Toronto.	9,294	10	274,272	30
Government House	do.	....			
Custom House	do.	306	20	5,104	18
Post Office	do.	....		27,986	07
Observatory	do.	....		13,884	65
Female Lunatic Asylum	do.	....		9,966	83
Osgoode Hall	do.	159	30	159	30
Medical School	do.	3	07	3	07
Gun Sheds	do.	87	00	3,679	23
Barracks	do.	597	37	597	37
Railway Inspector's Office	do.	525	62	525	62
Custom House	Hamilton.	7,734	07	17,662	62
Post Office	do.	974	80	52,625	42
Gun Sheds	do.	1,499	64	5,510	82
Post Office	London.	10,916	43	19,568	43
Custom House	Kingston.	13,566	00	38,210	00
Post Office	do.	7,620	19	36,196	52
Lunatic Asylum and Gaol	do.	1,625	00	4,293	92
Court House	Montreal.	989	42	292,380	40
Custom House	do.	....		907	63
Gaol	do.	....		1,263	60
Post Office	do.	269	99	269	99
Normal School	do.	6	00	5,422	82
Marine Hospital	Quebec.	23,581	58	91,706	10
Custom House	do.	23,256	37	167,170	39
Gun Sheds	do.	18	00	4,424	12
Normal School	do.	106	22	7,071	04
Gaol	do.	100	00	100	00
Observatory	do.	38	77	266	87
Gaols and Court Houses, C. E.		733	94	35,290	86
Gaols and Court Houses, C. E., 20 Vic. c. 44		771	44	771	44
Aylmer Court House		500	00	505	00
Kamouraska Gaol		6	90	6	90
Sherbrooke Court House and Gaol		5	47	5	47
Three-Rivers Court House		10	57	10	57
St. Hyacinthe Court House		4	95	4	95
Rents and Repairs		22,076	81	226,067	74

No. 3.—STATEMENT of non-productive Public Works, &c.—*Continued.*

WORKS.	Expenditure during the year 1858.	Total outlay up to 1st January, 1859.
Light Houses.	$ cts.	$ cts.
Light Houses below Quebec	45,012 07	389,971 42
Light House apparatus below Quebec		54,602 16
Light Houses (New) below Quebec	167 59	15,601 59
Point Pelée Light House	5,255 78	53,045 33
Snake Island Light House	7,758 75	10,411 87
Bay of Quinté Light House	31 26	108 16
Light Houses, Lake Huron	13,129 18	127,103 88
Light House apparatus, Lake Huron	5,798 19	74,949 16
Floating Lights above Lachine	115 53	115 53
Roads.		
Canada and New Brunswick	3,945 21	106,734 44
Metapedia	8,000 00	14,000 00
Malbaie and Grande Baie	2,000 00	6,000 00
St. Denis and Cap Chat		8,000 00
Marmora	2,400 00	4,000 00
Garrison Road, Toronto	1,600 50	1,600 50
Harbours and Piers.		
Port Bruce	4,119 47	6,267 47
Lake Huron	21,532 15	80,413 45
L'Orignal	1,000 00	2,000 00
Landing Piers		768,971 02
Repairs of Piers	6,422 53	6,422 53
Dredging Narrows and New Bridge, Lake Simcoe	2,050 00	10,138 30
Dredging at Picton and Presqu'Isle	737 53	1,013 03
Dredging at St. Clair's Flats	19,984 45	19,984 45
Richelieu Rapids improvements (St. Anne de la Pérade)	6,677 44	13,661 06
North River and Petite Nation Bridge improvements	2 572 00	3,600 00
River Thames Navigation improvements	2,589 82	3,814 42
Total	290,284 67	

No. 4.

STATEMENT of Miscellaneous Services shewing the expenditure on each under the Department of Public Works, during the year 1858.

	$ cts.
Emigration and Quarantine Service	7,477 38
Tug-Boats below Quebec	45,200 00
Tug-Boats upper St. Lawrence	24,191 52
Steamboat Service, Lower Provinces	10,000 00
Ocean Steamers	10,210 04
Removal to Toronto	271 50
Administrator's Removal to Toronto and back to Montreal, being balance due from 1857	81 00
Boundary Survey, Canada and New Brunswick	9 82
Trinity House, Quebec	16,064 64
Ottawa Survey	9,367 96
Protection of Fisheries in the Gulf	1,496 00
Bureau of Agriculture	300 42
Adjutant General's Office	1,346 29
Arbitrations	43,042 30
Surveys, generally	9,623 47
Shipwrecked Seamen	184 50
Removal of " Free Trader" wrecked at Port Stanley	1,608 38
	180,475 22
Less.	
Included in Nos. 1 and 2 Statements, and also, under head of Arbitrations	39,101 50
	141,373 72

No. 5.

Statement shewing the Expenditure incurred under this Department upon the Repairs, maintenance and management of the Ordnance Canals, for the year 1858, the net Revenue therefrom, and the cost of collecting it: Also, expenditure on Repairs of Ordnance property during the same year.

NAME.	Ordinary Repairs and maintenance.	Management.	Repairs Ordnance Property.	Total Expenditure.	Revenue.	Cost of Collection.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
Rideau and Ottawa Establishment		6,651 13		6,651 13		*
Rideau Canal	22,147 99			22,147 99	6,234 60	*
Carrillon Grenville Canal	4,511 78			4,511 78	2,877 46	*
Breach at Long Island			20,667 41	20,667 41		*
Ordnance Land Office			5,024 64	5,024 64		*
From Sundries					263 79	*
	26,659 77	6,651 13	25,692 05	59,002 95	9,375 85	

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* The Tolls have been to the present collected by the Lock Masters and Clerk in the Superintendent's office.

No. 6.

A DETAILED STATEMENT of the Expenditure incurred in repairs and maintenance of Provincial Light Houses, for the year 1858, under this Department.

No.	NAME OF LIGHT.	NAME OF KEEPER.	Amount of Salary paid.	Supplies and Repairs.	TOTAL.
			$ cts.	$ cts.	$ cts.
1	Lachine Pier.........	John Norton.....	385 00	316 50	701 50
2	Light Ship, No. 1....				
3	do. No. 2......	Pierre Landre....	250 00	244 92	494 92
4	do. No. 3......	Benj. Picard.....	250 00	218 33	468 33
5	Beauharnois............	Jos. Meloche.....	225 00	284 85	509 85
6	Grosse Point...........	Peter Shannon...	435 00	997 83	1432 83
7	Mackie's Point.........	A. McDonald....	175 00	151 82	326 82
8	Cherry Island and Light Ship................	E. S. Johnson....	435 00	2157 66	2592 66
9	Lancaster Pier.........	Thomas Hill.....	335 00	361 89	696 89
10	Cole's Shoal...........	Richard Elliott...	140 00	355 82	495 82
11	Grenadier Island.......	Joseph Austen...	120 00	340 69	460 69
12	Lindoe Island..........	J. W. Allan......	70 00	321 12	391 12
13	Gananoque Narrows..	James McDonald.	250 00	772 32	1022 32
14	Jack Straw Shoal....				
15	Spectacle Shoal........	Hiram Cook......	73 00	491 20	1155 20
16	Red Horse Rock........	Daniel Bryant....	591 00		
17	Burnt Island...........	Joseph Mervin...	120 00	336 45	456 45
18	Snake Island...........	Lewis Wartman..	217 50	758 14	975 64
19	Nine Mile Point........	John Dunlop.....	435 00	359 84	794 84
20	False Ducks............	Joseph Swetman.	510 00	926 71	1436 71
21	Point Peter............	W. A. Palin.....	435 00	714 30	1149 30
22	Scotch Bonnet.........	John Gerow.....	543 75	371 54	915 29
23	Presqu'Isle.............	W. Swetman, Sr.	325 00	835 01	1410 01
23½	do. Range Light.	W. Swetman, Jr.	250 00		
24	Gull Island............	George Roddick..	543 75	450 37	994 12
25	Gibraltar Point.........	George Durnan...	435 00	712 26	1147 26
26	Burlington Bay.........	John Davidson...	400 00	168 19	568 19
27	Oakville...............	....	....	75 00	75 00
28	Port Dalhousie.........	Jonathan Woodall	525 00	374 88	699 88
29	Port Colborne..........	James Fortier....	381 25	521 46	902 71
30	Mohawk Island........	John Burgess....	435 00	181 56	616 56
31	Port Maitland..........	Peter Baikie.....	435 00	151 49	586 49
32	Port Dover.............	....	....	104 02	104 02
33	Long Point...........	H. H. Clarke. ...	435 00	448 39	883 39
34	Port Burwell...........	Alex. Sutherland.	320 00	201 98	521 98
35	Port Stanley...........	M. Child........	153 00	109 21	262 21
36	Point Pelée..........	W. J. Taylor..... James Edwards..	217 50 162 50	673 16	1053 16
37	Pelée Island...........	James Cummins..	435 00	1442 69	1877 69
38	Bois Blanc.............	James Hackett...	435 00	453 35	888 35

No. 6.—Detailed Statement of the Expenditure, &c.—*Continued.*

No.	NAME OF LIGHT.	NAME OF KEEPER.	Amount of Salary paid.	Supplies and Repairs.	TOTAL.
			$ cts.	$ cts.	$ cts.
39	River Thames..........	Thomas Cartier..	435 00	287 20	722 20
40	Goderich..............	Humphrey Fidler.	325 00	334 47	659 47
41	Point Clark............	John Young......	....	296 31	296 31
42	Chantrey Island......	John Spence.....	94 80	451 84	764 14
		D. M. Lambert...	217 50		
43	Isle of Coves.........	George Collins...	288 79	496 18	906 16
		E. Collins, Asst..	121 19		
44	Griffith Island..........	John Frame......	138 62	457 95	596 57
45	Nottawasaga Island...	Robert Mills......	363 51	512 31	984 57
		D. McBeath......	108 75		
46	Christian Island........	Wm. Hoare......	435 00	375 60	810 60
	Below Quebec.				
47	Belle-Isle............	D. Vaughan......	300 00	1536 70	1986 70
		J. Bte. Baron....	150 00		
48	Anticosti............	D. Ballantyne....	200 00	946 96	1276 96
		J. Harvey.......	130 00		
49	Forteau Bay...........	John Blancpied..	200 00	795 46	995 46
50	Cap Rosier..........	Eugène Trudeau.	100 00	1005 06	1170 06
		Ls. Lemieux.....	65 00		
Management, Travelling Expenses, Freight of Supplies and Advertising, &c............			....	6399 23	6399 23
Supplies on hand in Store....................			....	813 50	813 50
			15356 41	32093 72	47450 13

No. 7.

STATEMENT showing the total amount expended by the Department of Public Works, during the year 1858, as detailed in the foregoing Statements numbered 1, 2, 3, 4, 5 and 6.

STATEMENT.	Repairs and Maintenance.	Construction.	Miscellaneous.	TOTAL.
	$ cts.	$ cts.	$ cts.	$ cts.
No. 1:	211,600 29	204,468 12	37,501 50	453,569 91
2	523 74	48,851 54	1,600 00	50,975 28
3	48,782 74	241,501 93	....	290,284 67
4	....	....	141,373 72	141,373 72
5	59,002 95	....	....	59,002 95
6	47,450 13	....	....	47,450 13
	367,359 85	494,821 59	180,475 22	1,042,656 66

SCHEDULES

TO

APPENDIX LETTER A.

Schedules, Nos. 1 and 2, shew the several appropritions made by the Legislature, with the amount of the same expended, the Works completed and in progress, and the balance unexpended to the 1st day of January, 1859, amounting to the sum of $17,871,71.

The approximate Estimate shews the propable costs of the several Works requiring an appropriation to complete them, amounting to $572,120.

Of the foregoing sum an appropriation of $80,000 will be required this year, for carrying on the dredging operations of the Contractor, for widening and deepening the Canal above Allanburg.

Sums are included in the Estimate, for the further enlargement of the Harbors, at Ports Colborne and Dalhousie, for the purpose of affording more accommodation for Vessels, to lay by. As during adverse winds, they are detained for several days together, which frequently causes these Harbors to be so much crowded that Vessels occasionally damage each other.

Schedule No. 3, gives the costs of the maintenance and repairs of the Canal, for the past year, under the severalh eadings, shewing the different kinds of Works of repairs which have been made.

These expenditures have been charged against the Tolls.

The cost of the maintenance is	$42,642. 97
And that of repairs is	$61,806. 84

The foregoing expenditures were required to be made for the following purposes, viz :

For the maintenance of the Canal force comprising the Pay-Master, Lock and Bridge, Tenders, Harbor Masters, Overseers, Regulators of Waters, &c.	$35,058. 74
Oil used in lighting the Canal and for Machinary.	$7,584, 23
Total maintenance,	$42,642, 97

The repairs have been made as follows, viz :

For the repairs of the Floating Towpath,	$2,463. 13
" " do " " Piers,	9,970. 12
" " do " " Docking, Dunnville, Dam,	2,506. 70
" raising Embankments by Scoing Clay and Stone,	6,882. 90
" repairs of Service Scows, constructing Scows, for hoisting Gates and Breaking Ice,	3,040. 66
" dredging bars from the bottom of the Canal, carried into it by 12 Mile Creek and Wears, at Nos. 1 and 2,	2,727. 60
" repairs Old Bridges and Buildings, 4 new Swing Bridges,	6,851. 67
" repairs Old Lock Gates and Buildings, 17 New Gates,	10,212. 05
" Castings and Iron Work, for the repairs of Lock Gates, Bridges, &c., and building 17 new Gates and 4 Bridges,	5,313. 67
" Bottoming the Canal and making passing places for Vessels above Thorold,	4,741. 46
" purchase of Lumber, used in making repairs and for Lock Gates and Bridges,	4,465. 11
" Spike, Nails, Rope, Shovels, Wheelbarrows, Sundries, &c.	2,631. 80
Total Repairs,	$61,806. 84

These expenditures have been necessarily made in maintaining the several specified Works of this Canal, as also towards affording sufficient facilities for meeting and repairing casualties. And to effect which there has been provided 40 Lock Gates, to suit some of the different lifts and sizes of the Locks, 6 Scows, Lumber, materials and tools. The present value of the same being $31,000. The expenditure upon which has been during the past year, according to their value $14,000. I beg leave to submit, (for the further information of the Commissioners, that they may fully understand the extent of the Work for which repairs are required,) the following details, viz :

The length of the main line of the Canal, from the outer end of the Pier at Dalhousie, to the outer end of the Pier at Colborne, is 2 miles, 1099 feet.
Its Feeder, is 21 miles long.
The Broad Creek Branch, 1 mile 3,669 feet.
And the total length of the Canal, is near 50 miles.
Its structures are as follows, viz :
33 Locks, 134 Lock Gates with Machinery.
1 Aqueduct.
32 Stone Waste Wears, 1 wooden do.
4 Stone Culverts, 10 wooden do.
3 under ground drains, constructed of Stone, 1799 feet long.
25 Swing Bridges, with their approaches and protection Timbers, upwards of a mile long.
65 Bent and other Bridges, over Waste Wears, &c., 5,774 feet long, averaging over 88 feet each.
20 Floating towingpath Bridges, with protection piling, railing, &c., 10,362 feet long.

12,067 feet of Boom Timbers, in the Rock Cut, near Port Colborne, to protect Vessels from dammage. The Dunnville Dam, 546 feet long a Timber Structure, with a Toll Bridge over it. The Embankment at West end Dunville Dam, 1682 feet long, faced with Docking Timbers and protection piles. The Piers at Ports Dalhousie, Colborne and Maitland, 12,065 feet in length. The Hydraulic Race and Aqueduct, is 11,698 feet long.

It will be seen by the foregoing that there are upwards of 9 miles of Timber Structures, to be maintained, many of these Works are unavoidably exposed to frequent damage from Vessels and Storms. And are likewise composed of perishable materials, which only last upon an average of from 10 to 12 years. And through fortuitous circumstances, that which to day appears as a firm Structure, may on the morrow, be so damaged as to require a large outlay.

Schedule No. 4, gives a list of the water power and other property leased on this Canal, with the erections, and other property established.

The annual rent is	$ 9,110. 72
The amont paid in 1858, is	13,068. 18
And the balance of the remaining due on the 31st of last December, is	15,105. 85

In accordance with your instructions, the arrears due to 1st July 1857 have been placed in the hands of the Solicitor for collection, of which he has obtained $1,742. 20. This sum he has placed in the hands of the Pay-master. There still remains a considerable amount to be collected, and of this, there is due $4,575. 99, by persons holding leases. Who owing to the depression of business, and destruction of their properties by fire, have become insolvent, or unable at present to pay the amount of their indebtedness. A considerable portion of which has accrued since their misfortune, and from these circumstances, some time must elapse before all the arrears can be collected.

Schedule No. 5, shews the land and other property disposed of, as not required for canal purposes, with the amount of sales, the interest accruing thereon with the payments made, and the balance remaining due on the 31st of last December. Payments in 1858, $804, 56. Balance due $23 115 89.

Schedule No. 6, gives the vessels, and other property, upon which penalties have been imposed, in consequence of having committed breaches of the canal regulations or damaged the works of the canal.

The amount imposed is	$11,646. 35
The amount paid is	947. 29
The balance remaining uncollected is	10,699. 06

The large amount standing uncollected has mostly accrued through the breakage of the gates of 4 locks.

Schedule No. 7, shews an approximate estimate of the probable expenditure required in making the necessary repairs on this canal, for the year 1859, amounting to the sum of $40. 000. Of this sum there is set apart about one third for the building of lock, gates and bridges.

Herewith is appended a statement shewing the revenu of this canal for the last 3 years.

Its revenue from tolls last year is $207,760, 38. Being a sum of $24 677, less than its revenue for 1857. Although 122 more vessels have been passed through the canal, than in that year.

This decrease has been occasioned by a reduction of the Tolls of from 33 to 25 per cent, on the principal articles of its trafic. And this reduction was rendered necessary, in consequence of the rate of Tolls upon the Erie Canal having been lowered.

The foregoing with the accompanying Schedules, affords I trust all the information required.

I have the honor to be
Gentlemen,
Your Obedient Servant,

S. D. WOODRUFF.

The Honorable the Commissioner of Public Works.

Table of Revenue of Canal for the last three years.

	1856.	1857.	1858.
	$ cts.	$ cts.	$ cts.
Collected at Colbornd........	175827 80	161319 91	153219 20
Do Robinson.........	4467 20	4514 13	3521 27
Do Maitland.........	1059 85	3465 62	1456 33
Do Dunnville.........	6140 27	3536 62	2461 88
Do St. Catherines....	2419 86	2396 66	1668 47
Do Dalhousie........	71652 85	57204 44	45444 37
	$261568 13	$232437 38	$207771 52
Annual Rents $9110 72 Collected..................	9081 07	9021 07	13068 19
Collected on Land Sales......	636 00	539 00	804 56
Do Fines and Damages.	1760 25	595 00	947 29
	$273045 45	$242592 45	$222591 56

WELLAND

SCHEDULE No. 1, shewing the several appropriations, with the Expenditures 1858, (estimates returned for Work done in month of Decr. included,) the Works set forth, with the Amount of £70,840 voted thereon.—The

WHAT WORKS.		Amount of Estimate voted.
SCHEDULE No. 1.		£ s. d.
Cotton & Rowe, piers at Dalhousie and Colborne		13,903 15 6
Raising aqueduct and embankments, guard gates, Colborne		4,559 5 10
Section No. 27		6,874 15 6
Sections Nos. 17 to 26, both inclusive		19,732 10 0
Swing bridges, lock gates, raising aqueduct lock		8,313 0 9
Port Robinson lock, embankment protecting vessels in Rock Cut		1,200 0 0
Waste wear at aqueduct, embankment at junction, raising dams, &c.		3,086 13 4
Raising embankment section No. 23, cribs, junction lock, culvert, at Brown's Ditch		737 0 0
Walling and embankment section No. 27, snubbing posts, temporary light-house, Colborne		1,029 17 6
Two scows for dredge, removing dams at aqueduct, culvert at aqueduct.		2,022 0 0
Walls connecting aqueduct and lock, covered drain at aqueduct		2,150 10 9
Removing dam and old culvert at junction, regulating gates for mills		2,200 0 0
Guard booms for Allanburg lock, roads to aqueduct and Marlatt's bridge.		405 0 0
Embankment, and dredging away old tow-path at aqueduct		600 0 0
Superintendence and contingencies		6,000 0 0
		72,814 9 2
Booms for vessels in Rock Cut, and lock houses	Appropriated by 14, 15 V. c. 46	19,499 4 0
Buoys at Colborne, recesses and approaches to pier, dry walling, &c		
Raising banks between Thorold and Dunnville, iron railing to aqueduct		
Back ditches on canal Colborne Route, Mountain hydraulic road		
Lock houses and house for light-keeper at Colborne, guard gates at Allanburg		
Altering and strengthening hydraulic race, facing banks with stone		
Regulating wear at lock No. 11, moving bridges at Dalhousie and Thorold		
Back ditches on feeder, providing scows		
Providing lying-by places for vessels in short reaches, contingencies		
		19,499 4 0
Additional admission, wears for mills	Appropriated by 16 V. c. 156	34,024 11 3
Lock houses, Collector's offices and dwellings		
Waste wears at Dunnville and bridge		
Awards to contractors and for lands		
Superintendence and contingencies		
		34,024 11 3

CANAL.

made on the WELLAND CANAL, for Works in progress ending 31st December, together with SCHEDULE No. 2, shewing the several Estimates to complete Balance required to be appropriated to complete the Works set forth, is—

Amount of Estimate voted.	Amount expended to 1st January, 1858	Expended from 1st Jan., 1858, to 1st Jan., 1859.	Total Amount expended to 1st Jan., 1859.	REMARKS ON WORKS.
$ cts.	$ cts.	$ cts.	$ cts.	
55,615 10	59,899 21	...	59,899 21	Completed.
18,237 17	15,453 07	...	15,453 07	do.
3 27,499 10	24,230 70	...	24,230 70	do.
78,390 00	62,875 75	12,000 00	74,875 75	In progress. See Sch. No. 2.
33,252 15	36,976 80	...	36,976 80	Completed.
4,800 00	2,951 20	...	2,951 20	do.
12,346 67	12,586 18	...	12,586 18	do.
2,948 00	2,456 46	...	2,456 46	do.
4,119 50	4,119 50	...	4,119 50	do.
8,068 00	9,093 20	...	9,093 20	do.
8,602 15	13,114 97	...	13,114 97	do.
8,800 00	8,735 80	...	8,735 80	do.
1,620 00	1,471 22	...	1,471 22	do.
2,400 00	640 00	...	640 00	do.
24,000 00	24,000 00	...	24,000 00	do.
291,257 84	278,604 06	12,000 00	290,604 06	
...	2,826 52	...	2,826 52	Completed.
...	1,895 60	...	1,895 60	
...	4,202 92	...	4,202 92	
...	10,385 13	...	10,385 13	
77,996 80	19,310 17	...	19,310 17	
...	33,927 57	...	33,927 57	
...	2,778 50	...	2,778 50	
...	5,378 22	...	5,378 22	
...	5,046 88	...	5,046 88	
...	10,000 00	...	10,000 00	
77,996 80	57,131 17	...	57,131 17	
...	1,399 17	...	1,399 17	Completed.
...	34,387 37	...	34,387 37	
136,098 25	44,560 68	...	44,560 68	
...	47,809 57	...	47,809 57	
...	7.931 17	...	7,931 17	
136,098 25	136,087 96	...	136,087 96	

WELLAND

SCHEDULE No. 2, shewing the several appropriations, with the

WHAT WORKS.			Amount of Estimate voted.
SCHEDULE No. 2.			£ s. d.
Shewing the Estimates to complete the several Works set forth, with the amounts appropriated for the same, and the balance required to be appropriated to complete them.			
Basin below lock at Colborne	£18,200	Appropriated in 1854, by 18 V. c. 4, £58,340	....
Collectors' offices and residences, Port Robinson, Maitland and Dunnville	2,250	....	....
Raising locks	4,000	....	....
Finishing deep cut to 50 feet bottom, sections Nos. 15 and 16	39,420	....	70,840 0 0
Sections 17 to 26, widening to 50 feet bottom	64,554	....	....
Weigh Lock	17,500	Appropriated in 1858, 22 V. c. 22, £12,500.	....
Extension of south end east pier at Dalhousie	3,000		....
Superintendence and contingencies	9,021		....
			70,840 0 0
			197,178 4 5

For second towing path on east side of canal from Hurst's Bridge to Marlatt's	£4,525
For culvert at Brown's Ditch	2,750
For ditching on the feeder	1,000
For bottoming canal above Thorold	500
For lands and other damages	7,400
For superintendence and contingencies	5,000
For enlargement of harbor at Dalhousie and pier work, clearing out basin	12,500
For do. do. Colborne, and do. on south east side	16,000
For do. do. do. and do. south-west do	6,250
Total value of the foregoing proposed works	£213,870
Amount of the same voted in 1854 £58,340 and 1858 12,500	70,840
Amount required to be appropriated to complete the several Works enumerated in Schedule No. 2	£143,030 or $572,120 00

St. Catharines, February 3rd, 1859.

CANAL.

Expenditures made on the Welland Canal, for Works, &c.—*Continued.*

Amount of Estimate voted.	Amount expended to 1st January, 1858	Expended from 1st Jan., 1858, to 1st Jan., 1859.	Total Amount expended to 1st Jan., 1859.	REMARKS ON WORKS.
$ cts.	$ cts.	$ cts.	$ cts.	
....	65,697 40	....	65,697 40	Completed. Balance of this appropriation to pay for lands and other damages.
....	....	....	....	Not yet put in hands.
....	16,000 00	....	16,000 00	Completed.
283,360 00	....	....	....	In progress.
....	78,166 90	63,000 00	141,166 90	do.
....	....	....	....	Not yet put in hands.
....	10,025 26	....	10,025 26	Completed.
....	29,034 75	5,783 50	34,818 25	
283,360 00	198,924 31	68,783 50	267,707 81	$17,871 71. Balance of the several appropriations in hands.
788,712 88	690,057 67	80,783 50	770,841 17	

S. D. WOODRUFF,
Superintendent,
Welland Canal.

WELLAND

SCHEDULE No. 3.—Detailed Schedule of the Gross Amount of the CANAL for the

	MAINTENANCE.									
	Sheet No. 1. Division No. 1.—Office establishment, Clerk, Paymaster, &c.	Overseers, Lock, and Bridge Tenders, Harbour Masters.	Lighting Canal with Gas.	Oil furnished for lighting Canal.	Contingencies, advertising List of Vessels passing through Canal, printing, postage, stationery, telegraphic communications, office furniture, fuel, &c.	TOTAL AMOUNT OF MAINTENANCE.	Constructing New Bridges and Repairs Old Bridges.	Carpenters constructing Lock Gates, Carpenters and Laborers making Sundry Repairs, Lock Gates, Bridges, Embankment, Ditching, &c.	Castings and Iron Work for Bridges, Lock Gates, &c.	Lumber and Timber furnished for constructing Lock Gates, Bridges and Repairs of same.
1858.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Jan...	132 00	1408 75	....	......	260 95	1801 70	1751 13	366 91	249 24	174 00
Feb...	132 00	1576 13	....	......	......	1708 13	793 87	335 07	250 49	150 89
March	132 00	2152 60	....	......	79 47	2364 07	993 50	1252 17	422 81	278 68
April.	132 00	3053 95	....	... ..	16 25	3202 20	341 35	560 38	191 79	493 10
May..	132 00	3171 15	....	537 50	10 64	3851 29	....	888 18	1119 47	1070 49
June..	132 00	3150 85	....	......	144 25	3427 10	304 43	1030 69	529 59	672 74
July..	132 00	3140 25	2571 50	......	106 37	5950 12	....	1388 00	515 67	547 16
August	132 00	3153 25	....	......	11 86	3297 11	1725 39	1559 32	1163 24	260 95
Sept..	132 00	3161 60	....	581 07	81 75	3956 42	....	922 10	589 91	738 09
Oct....	132 00	3168 15	....	......	41 51	3341 66	942 00	602 37	36 47	14 47
Nov..	132 00	3148 50	....	......	6 00	3286 50	....	489 85	221 55	....
Dec...	132 00	2160 25	3894 16	......	270 26	6456 67	....	817 01	23 44	64 54
$	1584 00	32445 43	6465 66	1118 57	1029 31	42642 97	6851 67	10212 05	5313 67	4465 11

St. Catharines, 3rd February, 1859.

CANAL.

Monthly Expenditures on the Maintenance and Repairs of the WELLAND year 1858.

REPAIRS.

Scowing Clay and Gravel for raising and facing Embankments to allow for increase in height of Water.	Dredging out Bars formed in Canal by Current from Twelve Mile Creek and Waste Wears below Locks Numbers 1, 2 and 3.	Repairs Piers at Port Dalhousie.	Repairs Piers at Port Maitland.	Sundry Materials furnished, Paint, Oil, Spike, Nails, Rope, Shovels, &c.	Labor removing Bars from bottom of Canal and making three passing places above Thorold, &c.	Scows for hoisting Gates, Ice Breakers, Service Scows repaired.	Repairs, Floating Towpath.	Docking, Embankment, Dunnville Dam.	TOTAL AMOUNT REPAIRS.	TOTAL AMOUNT OF MAINTENANCE AND REPAIRS.
$ cts.	$ cts.	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
......	......	......	......	108 53	331 99	300 00	......	......	3281 80	5083 50
......	......	......	......	204 76	1290 48	400 00	......	......	3425 56	5133 69
......	......	......	......	103 25	2123 68	350 00	......	......	5524 09	7888 16
464 90	356 00	1200 00	......	446 93	995 31	150 00	400 00	......	5599 76	8801 96
900 15	823 80	1000 00	......	539 57	......	649 38	......	......	6991 04	10842 33
1506 24	325 20	1800 00	......	248 74	......	......	300 00	......	6717 63	10144 73
1093 85	228 00	2500 00	......	217 77	......	86 78	......	......	6577 23	12527 35
1325 08	578 60	1400 00	......	345 82	......	......	1000 00	......	9358 40	12655 51
1592 68	416 00	947 08	......	182 06	......	.....	763 10	2346 70	8497 72	12454 14
......	......	......	......	37 68	......	......	......	160 00	1792 99	5134 65
......	......	......	......	76 81	......	1104 50	......	......	1892 71	5179 21
......	......	......	1123 04	119 88	......	......	......	......	2147 91	8604 58
6882 90	2727 60	8847 08	1123 04	2631 80	4741 46	3040 66	2463 10	2506 70	61806 84	104449 81

S. D. WOODRUFF,
Superintendent,
Welland Canal.

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of Water-Power leased, and the rents of other Property situated on the line of the WELLAND CANAL, with the yearly rent, together with the arrears of rent, the Amount of Payments made in 1858, with the balance due on the 1st of January, 1859.

Where Situated.	OWNERS.	MACHINERY.	Yearly Rent.	Amount of Rent for 1858, with arrears.	Amount of Payments in 1858.	Balance due on Rent to 1st Jan., 1859.	REMARKS.
			$ cts.	$ cts.	$ cts.	$ cts.	
Port Dalhousie....	Robt. Laurie & Co......	1st run stones..................	60 00				
		2nd do	50 00				
		3rd do	50 00				
		Corn cracker	10 00				
		Ground rent	20 00				
		Interest on cost of flume.........	7 30				
			197 30	394 60	197 30	197 30	
Do.	Robt. & J. Laurie.......	1st run stones..................	60 00				
		3 do at $50 each........	150 60				
		Ground rent	20 00				
		Interest on cost of flume.........	10 00				
			240 00	480 00	240 00	240 00	
Do.	Sampson Smiley, formerly R. Morrison....	1 saw..........................	80 00				
		2 circular do, at $16 each.......	32 00				
		Ground rent	20 00				
		Interest on cost of flume.........	5 00				
			137 00	822 60	753 50	68 50	

Do.	Alex. Muir	Rent for use of water for floating dock	40 00				
		Ground rent	30 00				
		Interest on cost of flume	6 00				
		Additional privilege for increase in dock, (rent to commence 1st July, 1858)	100 00				
			176 00	202 00	114 00	88 00	
Lock No. 2	J. L. Ranney's assignees, R. Miller, W. Eccles, and T. R. Merritt	1st run stones	60 00				
		4 do at $50 each	200 00				
			260 00	780 00	650 00	130 00	
St. Catharines	Water Power Co.	Surplus water from Lock No. 11, to Lock No. 2	500 00	1,500 00	1,250 00	250 00	
Do:	Calvin Phelphs	6 run stones	150 00	300 00	....	300 00	
Lock No. 5	Rich. Collier	1st saw	80 00				
		3 circular do 1 last factory	60 00				
		Ground rent	20 00				
		Interest on cost of flume	7 66				
			167 66	419 16	167 66	251 50	
Lock No. 10	William Brownlee, formerly Thos. Towers	1st run stones	60 00				
		2nd do	50 00				
		Corn cracker	10 00				
		Ground rent	20 00				
			140 00	420 00	210 00	210 00	
Lock No. 12	Orson Phelps	1 upright saw	80 00				
		1 circular do	16 00				
		Ground rent	20 00				
		Interest on cost of flume	8 00				
			124 00	186 00	....	186 00	

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of Water Power leased, &c.—*Continued.*

Where Situated.	OWNERS.	MACHINERY.	Yearly Rent.	Amount of Rent for 1858, with arrears.	Amount of Payments in 1858.	Balance due on Rent to 1st Jan., 1859.
			$ cts.	$ cts.	$ cts.	$ cts.
Lock No. 15......	John Brown...........	1st run stones, with cracker......	60 00			
		Additional power...............	80 00			
		Ground rent....................	20 00			
			160 00	480 00	400 00	80 00
Lock No. 20......	Wm. B. Hendershot....	1st saw.......................	80 00			
		2nd do........................	60 00			
		1 circular for edging boards......	16 00			
		Ground rent....................	20 00			
		Interest on cost of flume.........	8 00			
			181 00	423 00	332 50	90 50
Lock No. 21......	William Beatty........	1st saw.......................	80 00			
		2nd do........................	60 00			
		3 circular do at $16 each........	48 00			
		Ground rent....................	20 00			
		Interest on cost of flume.........	8 00			
			216 00	648 90	540 00	108 00
Lock No. 22......	William Beatty........	Wheel for grinding Bark, &c....	60 00			
		Interest on cost of flume.........	3 60			
			63 60	190 80	159 00	31 80

Lock No. 23......	W. H. Ward, assignees Rykert Smart & Marlatt	2 lathes, 2 planing machines and 3 circular saws..............	50 00	100 00	....	100 00	
Do.	W. H. Ward, assignees Rykert Smart & Marlatt.	1st saw .... 2nd do .... Interest on cost of flume.........	80 00 60 00 6 00				
			146 00	292 00	....	292 00	
Do.	John Brown, formerly W. H. Ward............	Wharf lot	40 00	120 00	100 00	20 00	
Do.	John Brown	Wharf lot	40 00	120 00	100 00	20 00	
Lock No. 24......	Jacob Keefer, now Oswalds since assigned..	1st run stone.................. 2nd, 3rd and 4th, at $50 each.... Interest on cost of flume.........	60 00 150 00 12 00				
			222 00	666 00	444 00	222 00	
Do.	Brown & Ross, now Wm. A. Chisholm.........	1st run stones.......... ...... 2nd do .... Ground rent	60 00 50 00 20 00				
			130 00	780 00	....	780 00	
Do.	Park & Cowen, (now estate late David Thompson)...............	1st run stones..... .... 2nd and 3rd do at $50 each	60 00 100 00				
			160 00	480 00	320 00	160 00	
Do.	John Woodward's Estate, formerly A. Crysty's..	1st run stones.................. 2nd and 3rd do at $50 each	60 00 100 00				
			160 00	320 00	....	320 00	
Lock No. 25......	John Brown	1st run of stones with cracker. ... Ground rent	60 00 20 00				
			80 00	240 00	200 00	40 00	

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of Water Power leased, &c.—*Continued.*

Where Situated.	OWNERS.	MACHINERY.	Yearly Rent.	Amount of Rent for 1858, with arrears.	Amount of Payments in 1858.	Balance due on Rent to 1st Jan., 1859.	REMARKS.
			$ cts.	$ cts.	$ cts.	$ cts.	
Allanburgh......	Wright and Duncan....	1st run stones..................	60 00				
		2nd and 3rd do, at $50 each.....	100 00				
		Carding machine...............	50 00				
		Interest on cost of flume.........	60 66				
			270 66	1,923 99	....	1,923 99	*Marked thus leases failed or properties burned.
Do.	W. H. Merritt, Jr.......	1 saw.........................	80 00				
		Interest on cost of flume.........	7 10				
			87 10	705 50	661 95	43 55	
Do.	J. & A. Bowman	Water equal to 1 run stones......	60 00				
		Interest on cost of flume.........	6 00				
			66 00	198 00	....	198 00*	
Do.	Wm. Pennock	Water equal to 1 run stones......	60 00				
		Interest on cost of flume.........	6 00				
			66 00	132 00	66 00	66 00	
Do.	Tucker & Rannie......	Old grist and saw mill..........	1,000 00	3,000 00	1,000 00	2,000 00	These mills are the property of the Canal, and as one of them has been rendered useless
Port Robinson.....	McFarland & Simon, now J. Abbey............	1st saw	80 00				
		1 circular do, and machine shop..	40 00				
		Interest on cost of flume.........	30 00				
			150 00	450 00	225 00	225 00	

Do.	McFarland & Abbey	Dry dock	79 20	237 60	118 80	118 80	from delapidation, a reduction of the amount is claimed.
	Donaldson & McFarland, now Robt. Band	1st run stones	60 00				
		Ground and house rent	20 00				
		Interest on cost of flume	6 00				
			86 00	629 50	193 50	436 00	
Do.	Robt. Band & Co., now D. McFarland	1st run stones	60 00				
		2nd and 3rd do, at $50 each	100 00				
		Ground rent of mill	20 00				
		Do of store house and wharf	20 00				
		Interest on cost of flume	6 00				
			206 00	618 00	309 00	309 00	
Do.	W. Thompson, formerly Dunlap & Seely	1st run stones	60 00				
		2nd and 3rd do, at $50 each	100 00				
		Other machinery	50 00				
		Interest on cost of flume	6 00				
			216 00	648 00	540 00	108 00	
Merrittville	Dunlap & Seely, assigned W. Joiner	1 saw	80 00				
		3 circular do, at $16 each	48 00				
		Ground rent	20 00				
		Interest on cost of flume	8 00				
			156 00	468 00	234 00	234 00	
Do.	Dunlap and Seely	1st saw	80 00				
		2nd do	60 00				
		4 circulars, at $16 each	64 00				
		Interest on cost of flume	10 00				
			214 00	1,070 00	....	1,070 00*	
Do.	Moses Betts, formerly E. Seely	Old aqueduct for store house and wharf	20 00	40 00	20 00	20 00	

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of Water Power leased, &c.—*Continued.*

Where Situated.	OWNERS.	MACHINERY.	Yearly Rent.	Amount of Rent for 1858, with arrears.	Amount of Payments in 1858.	Balance due on Rent to 1st Jan., 1859.	REMARKS.
			$ cts.	$ cts.	$ cts.	$ cts.	
Merrittville	Moses Betts, formerly M. Cook	1st run stones	60 00				
		2nd and 3rd do, at $50 each	100 00				
		Ground rent	20 00				
		Interest on cost of flume	12 00				
			192 00	384 00	192 00	192 00	
Marshville	John Graybiel	2 run stones, 1 saw and ground rent	160 00	240 00	....	240 00	
Broad Creek	L. McCallum	1 upright saw	80 00				
		2 circular do, at $16 each	32 00				
		Ground rent	20 00				
		Interest on cost of flume	11 00				
			143 00	286 00	71 50	214 50	
Port Maitland	Imlack & Hickes	1st run stones	60 00				
		2nd do	50 00				
		Ground rent	20 00				
		Interest on cost of flume	8 00				
			138 00	544 00	....	544 00*	
Dunnville	Jacob Turner	1st run stones	60 00				
		2nd do	50 00				

		1st saw	80 00				
		2nd do	60 00				
		Ground rent	20 00				
			270 00				
		Less ⅓ until Lake Erie level is adopted	90 00				
			180 00	270 00	90 00	180 00	
Do.	Samuel Darling	1 run stones	60 00				
		2 do	50 00				
		Ground rent	20 00				
			130 00				
		Less ⅓ until L. E. level is adopted.	43 33				
			86 67	260 00	173 33	86 67	
Do.	L. J. Weatherby	3 carding machines, 1 fulling mill, 1 loom and spinner, 2 turning lathes	80 00				
		Less ⅓ until L. E. level is adopted.	26 66				
			53 34	266 67	186 66	80 01	
Do.	H. Y. Mittleberger, now McIndoe & Co.	1 saw	80 00				
		Ground rent	20 00				
			100 00				
		Less ⅓ until L. E. level is adopted.	33 34				
			66 66				
		1 circular saw since added	10 67				
			77 33	348 00	....	348 00	

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of Water Power leased, &c.—*Continued.*

Where Situated.	OWNERS.	MACHINERY.	Yearly. Rate.	Amount of Rent for 1858, with arrears.	Amount of Payments in 1858.	Balance due on Rent to 1st Jan., 1859.	REMARKS.
			$ cts.	$ cts.	$ cts.	$ cts.	
Dunnville	Chisholm & Minor	1st saw	80 00				
		2nd do	60 00				
		8 circular do, at $6 each	48 00				
		Ground rent	20 00				
			208 00				
		Less ⅓ until L. E. level is adopted.	69 67				
			138 33	416 00	346 67	69 33	
Do.	Hugh Boomer	1st run stones	60 00				
		2nd and 3rd do, at $50 each	100 00				
		Ground rent	20 00				
			180 00				
		Less ⅓ until L. E. level is adopted.	60 00				
			120 00	840 00	....	840 00	
Do.	John Brown & Wm. H. Merritt, Jr	1st run stones with cracker	80 00				
		Ground rent	20 00				
		Interest on cost of flume	13 00				
			113 00	339 00	282 50	56 50	
Haldimand	John Oldfield	1st saw	80 00				
		2nd do	60 00				

		1 circular do....................	16 00				
		Ground rent	20 00				
			176 00				
		Less ⅓ until L. E. level is adopted.	58 67				
			117 33				
		Additional machinery: 1 gang upright saws, 1 planing machine, 3 circular saws for lathing, 1 for x cutting, 1 for bolting and one for sawing butts.....	120 00				
			237 33	712 00	356 00	356 00	
1	C. Johnson, now T. C. Street	1 saw..........................	80 00				
		Ground rent	20 00				
			100 00				
		Less ⅓ until L. E. level is adopted.	33 33				
			66 67	200 00	166 66	33 34	
	J. C. Kirkpatrick, formerly L. Brocklebank.	1 run stones....................	60 00				
		Ground rent....................	20 00				
			80 00				
		Less ⅓ until L. E. level is adopted.	26 67				
			53 33				
		2nd and 3rd run stones..........	100 00				
			153 33	613 32	536 66	76 66	
Do.	John Beatty & Robt. Band	1st run stones..................	60 00				
		2nd do	50 00				
		Ground rent	20 00				
		Interest on cost of flume.........	19 20				
			149 20	298 40	....	298 40	

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the annual rents of Water Power leased, &c.—*Continued.*

Where Situated.	OWNERS.	MACHINERY.	Yearly Rate.	Amount of Rent for 1858, with arrears.	Amount of Payments tn 1858.	Balance due on Rent to 1st Jan., 1859.	REMARKS.
			$ cts.	$ cts.	$ cts.	$ cts.	
Port Colborne.....	John Gordon...........	Wood Yard....................	25 00	75 00	50 00	25 00	
Lock No. 4.......	Calvin Phelps	Wharf lot.....................	40 00	80 00	....	80 00	
Lock No. 22 to Lock No. 11....	Welland Canal Loan Company.........	For all the surplus water passing through the Welland Canal from Locks No. 22 to 11 inclusive, excepting privileges heretofore granted—condition of lease $720 annually; but for 5 years from 1st Jan., 1855, the annual rent is but $360, unless the Company are enabled to loan out the whole of this water before—from which time the full shall commence	360 00	1,080 00	900 00	180 00	
Port Dalhousie....	James Mavor, now J. Johnson............	Lot	20 00	40 00	20 00	20 00	
Merrittville.......	Eli Mead.............	Wharf lot	25 00	50 00	....	20 00	
Port Dalhousie....	R. & J. Laurie.........	Lot, ½ acre..................	20 00	40 00	20 00	20 00	
Merrittville.......	Alpheus Sherwood	Wharf lot	25 00	50 00	50 00	....	
Junction	John A. Hellems.......	Do	25 00	50 00	....	50 00	

Port Colborne	A. K. Scholfield	Do	25 00	37 50		37 50
Port Dalhousie	Geo. A. Clark	Wharf, Dalhousie piers	80 00	120 00	80 80	40 00
Do.	Donaldson Andrews & Ross	Dry dock and service ground for use of water	40 00			
		Rent to commence from 1st July, 1858	60 00			
			100 00	50 00		50 00
Yearly rent			9,110 72			
Amount of Rent for 1858, with arrears				28,174 04		
Amount paid in 1858					13,068 19	
Balance due on Rent to 1st January, 1859						15,105 85

S. D. WOODRUFF,
Superintendent,
Welland Canal.

Welland Canal Office,
St. Catharines, 3rd Feb., 1859.

THOMAS ADAMS,
Payment Clerk,

WELLAND

SCHEDULE No. 5.—Schedule of Lands and other property on the WEL
31st December, 1858, Amount of interest on Sales to the 31st
Balance remaining due on the 1st January, 1859.

NAME OF PURCHASER.	NUMBER OF THE LOTS.	WHERE SITUATED.	QUANTITY.
James R. Benson, on behalf Hydraulic Company.........	....	Lots below Thorold...	211 A. 1. R. 17 perches. Int. to 31st Dec. 1858.
Alex. Lattimore.....	Parts of lots Nos. 34, 35 & 36 south....	3rd Con. Wainfleet ...	488 acres............ Interest ....
Municipality of the County of Welland.	Lands in........ Do do........	Wainfleet............ Humberstone .... Part of lot No. 27.....	10,796 acres 2,048 do 68 do .... Int. to 31st Dec. 1858.
Edward Henderson..	North parts Nos. 26, 27 & 28.........	3rd Con. Wainfleet ...	416 acres............ Int. to 31st Dec. 1858.
Ephraim Hopkins....	Part of lot No. 50...	Township of Thorold..	3 roods 2 perches.....
Sullivan and others ..	Sale of old Plank £8 11s. 1d. over charge on freight of oil 95s. 7167 lbs. scrap iron £17 18s. 1d	....	....
John Hanly.	On account of sale of John McCaw's house Port Colborne	....	....
John Sullivan.......	3998 lbs. old Scrap Iron	....	....
C. H. French........	South and West part of lot No. 23 in ..	5th Con. Humberstone	86 acres. ....
C. J. Hinchester.....	2850 lbs. Scrap Iron.	Unfit for Canal use...	....
L. McCallum	Part of lot No. 27 in	1st Con. Humberstone.	¾ acre more or less....
Nicholas Higgins....	Part of lot No. 27 do	1st Con. do	½ acre more or less....

CANAL.

LAND CANAL sold to sundry persons, Amount of Sales with interest to the December, 1858, Amount paid on Sales to the 31st December, 1858, and

Amount of Sale and Interest to 31st Dec., 1858.	Amount of Sale.	Amount of Interest to 31st Dec., 1858.	Amount paid to 31st Dec. 1858.	Balance due 1st January 1859.	REMARKS.
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
8454 25 2833 76					
11288 01	8454 25	2833 76	2010 85	9277 16	
976 00 104 56					
1080 56	976 00	104 56	1080 56	In full.	$280 56 paid in 1858.
12912 00 3617 00					
16529 00	12912 00	3617 00	3309 56	13219 44	
832 00 162 35					
994 35	832 00	162 35	575 06	419 29	
41 25	41 25	....	41 25	In full.	
124 92	124 92	....	124 92	In full.	
100 00	100 00	....	100 00	In full.	
29 98	29 98	....	29 98	In full.	
172 00 30 03					
202 03	172 00	30 03	202 03	In full.	
28 50	28 50	....	28 50	In full.	
320 00	320 00	....	320 00	In full.	
200 00	200 00	....	200 00	In full.	

WELLAND

SCHEDULE No. 5.—Schedule of Lands and other

NAME OF PURCHASER.	NUMBER OF THE LOTS.	WHERE SITUATED.	QUANTITY.
Mary Ann Dowling..	Part of lot No. 19 in	3rd Con. Wainfleet...	Deed................
Roman Catholic Corporation of Toronto.	Part of lot No. 27 do	1st Con. Humberstone.	½ acre land..........
Robt. D. McPherson.	Lot No. 12 Village of	Port Robinson........	....
John Rae...........	Lot (C)............	Port Colborne........	....
William Melanby....	Lot (D)............	do	....
Thomas Armstrong ..	To old house from lot No. 10 in consideration of all further claim for damages on said lot as per agreement with Mr. Woodruff....	Port Colborne	....
John Hanly.........	Lot marked (F)....	do	....

THOS. ADAMS,
Pay Clerk.

Welland Canal Office,
St. Catharines, 3rd February, 1859.

CANAL.

property on the Welland Canal, &c.,—*Continued.*

Amount of Sale and Interest to 31st Dec., 1858.	Amount of Sale.	Amount of Interest to 31st Dec, 1858.	Amount paid to 31st Dec., 1858.	Balance due 1st January 1859.	REMARKS.
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
5 00	5 00	....	5 00	In full.	
14 00	14 00	....	14 00	In full.	
75 00	75 00	....	75 00	In full.	Land donated, expenses of Deed collected $75 paid in 1858.
200 00	200 00	....	200 00	In full.	$200 do do.
200 00	200 00	....	200 00	In full.	$200 do do.
49 00	49 00	....	49 00	In full.	$49 do do.
200 00	200 00	....	....	200 00	
31681 60	24933 90	6747 70	8565 71	23115 89	$804 56

S. D. WOODRUFF,

Superintendent Welland Canal.

WELLAND CANAL.

SCHEDULE No. 6.—Statement shewing first, the Vessels whose Fines and Damages were unpaid on the 1st January, 1858, and secondly, the Vessels and other property passing through the Canal, with the Amounts levied thereon in 1858, and paid to the Paymaster, and the balance due on the 1st of January, 1859.

Year.	Date.	Description of Vessel, &c.	NAME OF VESSEL, &c.	Amount of Fine levied.	Amount of Damages levied.	Amount paid Paymaster in 1858.	Balance due 1st January 1859.	REMARKS.
				$ cts.	$ cts.	$ cts.	$ cts.	
1850	December 3rd	Schooner	Jos. Ward		5 00		5 00	a
1851	May 21st	Propeller	Jas. Wood		40 00		40 00	
1852	August 18th	Schooner	Holton		11 00		11 00	
do	September 7th	do	Chesapeake		12 00		12 00	
do	do 14th	do	J. E. Hunt		10 00		10 00	
1853	December 1st.	Raft	McDonalds	60 00	59 06		119 06	From *a* to *b*. Those Vessels have been either lost, or not since passed through the Canal.
1854	October 9th	Schooner	Vincennes	5 00			5 00	
do	do 27th.	do	Maryland		138 00		138 00	
1855	June 21st.	do	Manhatten		10 00		10 00	The penalties could not be imposed when the damage was done as its full extent was not known, and the Masters had not, in most
do	October 8th	do	Emblem Marshall		26 00		26 00	
do	do 10th.	do	Neclues		10 00		10 00	
do	Novem. 27th	Scow	Browns		10 00		10 00	
1856	May 13th	Schooner	Nile		40 00		40 00	*b* cases, money to pay with.
1857	October 6th	Scow	7 Brothers	10 00			10 00	
do	April 22nd	Schooner	S. H. Lathrop		2560 00		2560 00	Security taken for this payment.
do	do 30th	Steamer	St. Nicholas		4880 00		4880 00	Bond given for payment.
do	May 27th	Schooner	Willson		5 00		5 00	
do	do 28th	do	Paragon		28 00	28 00		
do	June 12th	do	Summit		6 00	6 00		
do	September 17th	do	Nonpareil		10 00	10 00		
do	October 9th	do	Wm. B. Ogden		102 00	102 00		
do	do 13th	Brig	Hampton		2 00	2 00		
do	do 17th	Schooner	S. H. Lathrop		20 00	20 00		
do	do 26th	do	Hungarian		199 00	199 00		
do	Novem. 2nd	do	Quincey		20 00		20 00	
1858	April 19th	Raft	J. G. Miller	20 00		20 00		
do	do 29th	Barque	Allies		1 00	1 00		

1858	April 30th	Schooner	E. M. Peck		4 00		4 00	
do	May 3rd	do	Amelia		1246 00		1246 00	In treaty with the Department.
do	do 15th	do	Tracy J. Bronson	20 00		20 00		
do	do 17th	do	May Flower	5 00		5 00		
do	do 20th	do	Darien	10 00		10 00		
do	do do	Propeller	Lacrosse		1435 00		1435 00	Security given for payment.
do	do 28th	Raft	Geo. Emerson		50 15	50 15		
do	do 29th	do	B. Sutherland		74 00	74 00		
do	do do	do	J. G. Miller		43 31	43 31		
do	June 9th	Schooner	Quebec	20 00		20 00		
do	do 22nd	Scow	R. Collier	10 00		10 00		
do	July 10th	Brig	New York	40 00			40 00	
do	do 12th	Raft	N. Cramer		3 33	3 33		
do	do 14th	do	Wm. Listen		8 00	8 00		
do do	do 15th do 19th	do	H. Cook		184 50	184 50		
do	July 17th	Schooner	London		5 00	5 00		
do	do 18th	do	Cayuhoga	4 00			4 00	
do	do 20th	Barque	Wm. Stergess	5 00		5 00		
do	August 16th	Scow	J. Carl	5 00		5 00		
do	Septem. 8th	Schooner	Garret Smith		3 00	3 00		
do	do 15th	do	Champion		4 00	4 00		
do	October 4th	do	Flying Cloud	60 00		60 00		
do	do 6th	do	Bemis		10 00		10 00	
do	do 11th	do	Chs. H. Walker		25 00	25 00		
do	do 18th	Propeller	Colonist		4 00	4 00		The small amounts levied and unpaid will be collected as the Vessels pass through the Canal this year. As the Masters had not the money, it was not considered advisable to detain them when damage was done, as such detention for small sums might result in injury to the navigation.
do	do do	Schooner	Geo. Thurston		12 00	12 00		
do	do 19th	do	Belle Walbridge		4 00		4 00	
do	do 25th	do	New London		30 00		30 00	
do	do 26th	do	Matt. McNair		8 00	8 00		
do	Novem. 2nd	do	Olivia		10 00		10 00	
	do 24th	Barque	W. F. Allan		5 00		5 00	
				274 00	11372 35	947 29	10699 06	

Welland Canal Office,
St. Catharines, 3rd February, 1859.

S. D. WOODRUFF,
Superintendent Welland Canal.

THOS. ADAMS, Paymaster and Clerk

WELLAND CANAL.

SCHEDULE No. 7.—Approximate Estimate of the probable cost of making the following repairs, in maintaining the Works of the WELLAND CANAL, during the Season of Navigation for the year 1859, viz:

From Port Dalhousie to Thorold, 9⅛ miles, 25 Locks, 25 Waste Wears, 10 Swing Bridges, &c., Floating Towpath, &c., Bent Bridges.		$ cts.	$ cts.
Posts and fender railing at lock No. 1, to protect lock gates from injury	....	100 00	
Hanging gates at locks Nos. 3 and 10, iron work, &c	....	200 00	
Repairs dam at 12 Mile Creek	These items included in the estimate for $4,030, submitted to the Commissioners in my Letter No. 3621, Nov. 23, 1858.	160 00	
Timber, bolts, framing and putting in 3 setts mitre sills..................		690 00	
Walling between locks Nos. 19 and 20, wing walls at 20 and 21		1,000 00	
Splicing the posts of 3 gates		210 00	
Timber filling between top girts and balance beams, 10 gates..............		220 00	
Repairs of cribs at float bridge, near Stone Mill, Thorold	....	150 00	
Flume at Chisholm's Mill, Thorold....	....	200 00	
3 carpenters in making repairs and building lock gates, partly from old materials, 2 at $2 each, 1 at $1¼ per day, for 9 months..		1,345 00	
1 team hauling materials, at $60 per month, for 9 months...		540 00	
4 laborers making repairs on banks and hydraulic race, setting snubbing posts, &c., for 9 months		936 00	
8 laborers scowing clay and stone for raising and facing banks to meet the rise of water, for 6 months		1,248 00	
Iron work for repairs lock gates, bridges, &c., and for new gates, at $200 per month, for 8 months ...		1,600 00	
24 new screws and matrixes for lock gates at $17 each, 50 new matrixes for old screws, at $6 each		708 00	
24 lifting blocks for heads of screws, at $6, new castings for repairs and new gates, $200		344 00	
Pine plank for repairs lock gates, bridges, 40 m. ft. at $12½, oak, 40 m. ft. at $15..................................		1,100 00	
Oak timber, for new gates, partly from old materials, 20 m. ft. at $20..........................		400 00	
Pine timber for repairs bridges, &c., 3,000 L. ft. at 8 cts., oak, 1,000 L. ft. at 10 cts		340 00	
Nails and spikes, 20 kegs, at $16		320 00	
Labor 1 month preparing for opening the canal, in cleaning out the locks, removing bars, &c., from bottom of canal, 60 men..		1,560 00	
			13,371 00
From Thorold to Allanburgh, 3¼ miles, 2 Locks, 1 Waste Wear, 3 Swing Bridges, Bent Bridge, &c.			
Repairs of gates, Allanburgh Locks	These items included in the estimate of $4,030, submitted to the Commissioners in my Letter No. 3621.	300 00	
Enlarging old supply wear at Allanburgh, and opening in flume to be closed ...		800 00	
The manner in which the present supply is regulated, affects the working of the gates.			
Carried over.................		1,100 00	

WELLAND CANAL.

SCHEDULE No. 7.—Approximate Estimate, &c.—*Continued.*

	$ cts.	$ cts.
Brought over	1,100 00	
Raising, facing and strengthening banks to meet rise in water, 40 scows load clay, at $30	1,200 00	
Do. do. do. do, 10 scows load stone, at $54.	540 00	
3 laborers ditching, raising banks, regulating water, &c	702 00	
Repairs towing path, culverts, 500 feet timber, at 18 cts., 6 m. ft. plank at $16, 50 day's labor	236 00	3,778 00
From Allanburgh to Junction, 7½ Miles, 2 Locks, Aqueduct, 6 Swing-Bridges, Bent do. Floating Towpath.		
Raising, facing and strenthening banks to meet rise in water, 15 scows load clay at $30	450 00	
do do do do do 12 do stone at $45	540 00	
4 laborers, ditching, raising banks, &c., for 8 months	832 00	
Pine plank, for repairs of bridges, &c., 30 m. ft., at $12½, oak do, 10 m. ft., at $15	525 00	
Pine timber, do 2000 ft., at 8 cts., oak timber 2000 ft., at 15 cts	460 00	
Protection piles at bridges, 60 at $5 ea., nails and spike, 10 kegs at $16	460 00	
Blacksmiths, iron work, castings, &c., 8 months at $100 per month	800 00	
1 carpenter making repairs at $2 per day, for 9 months	468 00	
Probable repairs on the bridge at Port Robinson, to make it last for the season	100 00	4,635 00
From Junction to Colborne, 7½ Miles, 1 Lock, 2 Swing Bridges Boom timber in Rock cut, &c.		
2 laborers, ditching, setting, snubbing posts, repairs boom timber for 9 months	468 00	
1 carpenter, making general repairs for 9 months at $40	360 00	
Blacksmith's work, iron bolts, &c., $300, castings for gates and bridges $100, spike and nails, 6 kegs at $16	496 00	
Pine timber, 1000 ft. at 10 cts., oak do 1000 ft. at 15 cts. 5 m. ft., pine plank at $12, 5 m. ft. oak plank at $15	385 00	1,709 00
From Junction to Marshville and Broad Creek, 16½ Miles, 1 Lock, 2 Swing Bridges, 3 Culverts.		
Raising, facing and strengthening banks to meet rise in water, 14 scows load clay at $30	420 00	
do do do do do	50 00	
Labor opening ditches and culverts, $200, 5 m. ft. pine plank at $16	280 00	750 00
From Broad Creek to Port Maitland and Dunnville, 6½ Miles, 2 Locks, 3 Swing Bridges, 3 Waste Wears, Dam, Bent Bridges, &c.		
Raising, facing and strengthering banks to meet rise in water, 40 scows load clay at $30	1,200 00	
do do do do 10 scows gravels at $60	600 00	
Carried over	1,800 00	

WELLAND CANAL.

SCHEDULE No. 7.—Approximate Estimate, &c.—*Continued.*

		$ cts.	$ cts.
Brought over		1,800 00	
2 laborers, ditching, regulating water, raising and repairing banks, &c., for 9 months		468 00	
8 matrixes for regulating screws Maitland lock, repair screws and putting in, at $8 each		64 00	
Blacksmiths, iron work $100, lumber 10 m. ft. at $10—$100.		200 00	
			2,532 00
Probable cost of repairing the damages done by vessels to the lock gates and bridges, &c		....	753 00
Rebuilding waste wear at head of Sulphur Creek		....	700 00
Planking bridges at Dunnville, Toll, Sulphur Creek, Brown's Oldfields, Johnson's, Bettey's and Kirkpatrick, 33 m. ft., at $24		....	792 00
Rebuilding Bridges over races leading to Davis's Miner's, Weatherby's and at Swing Bridge Oak timber 2400 ft. at 25 cts., pine 800 ft. at 15 cts., oak plank 15 m. ft. at $24, iron $100, clearing away old materials, $100		....	1,280 00
Total for repairs gates, bridges, &c., and building 6 gates partly from old Materials		....	30,300 00
Providing new Gates.			
1 sett of gates, to suit either the locks at Port Robinson or aqueduct	$2,200		
1 do. do. for the lock at Port Colborne	3,400	....	9,700 00
1 do. do. do. Port Maitland	3,400		
2 gates for the guard lock at Dunnville	700		
Total for repairs, gates, bridges, &c., and providing 14 new lock gates, and building 6 gates partly from old materials		....	40,000 00

S. D. WOODRUFF,
Superintendent,
Welland Canal.

Welland Canal Office,
St. Catharines, 3rd February, 1859.

B.

STATEMENT of Claims for Damages caused by the construction of the Dams at the head of the BEAUHARNAIS CANAL, shewing the total amount paid on claims, and the amounts paid to Commissioners, Arbitrators and Lawyers, to the 1st January, 1859; also, the Amount of unsettled Claims.

	Amount paid on Claims to 1st January, 1859.	Amount paid to Commissioners, Arbitrators and Lawyers, to 1st January, 1859.	Amount of unsettled Claims.
	$ cts.	$ cts.	$ cts.
Amount paid on Claims......	188,094 50	....	....
Do. to Commissioners.	....	8,633 26	....
Do. to Arbitrators.....	....	6,106 00	....
Do. to Lawyers..	....	3,663 77	....
Amount of unsettled Claims...	....	....	665,380 80
	188,094 50	18,403 03	665,380 80

C.

RIDEAU AND

Statement of Trade and

STATIONS.	Steamers and other Vessels.		Merchandize.	Square and flated Timber.	Cord Wood.	Butter.	Flour.	Ore.	Coal.	Shingles.
	No.	Ton'ge.	Ton.	Feet.	No.	Ton.	Ton.	Ton.	Ton.	M.
Kingston Mills, 1 to 2 sec.......	2343	149,255	668	296,625	18,057	85	155	1554	64	1099
Ottawa, 1 to 2 sec.	619	31,423	2900	60,060	5,760	356	717	1920	315	232
Carillon and Grenville, 1 sec.....	2197	129,548	2803	....	13,573	317	1046	....	429	62

Tolls on Articles not

Ottawa, 18th January, 1859.

OTTAWA CANALS,

Tolls for the season of 1858.

Saw Logs.	Bark.	Wheat.	Potatoes.	Iron.	Ashes.	Pork.	Sawed Lumber.	Salt.	Barrel Staves	Pig Iron.	Cement.	Tolls.
No.	Ton.	Ton.	Ton.	Ton.	Ton.	Ton.	Feet.	Ton.	M.			$ cts.
9,718	1406	12	22	1160	120	8¼	18,116,526	92	265	....	....	2842 35
37,872	....	710	4	1047	373	272	1,207,000	1743	473	117	....	3392 25
......	....	165	....	3931	723	453	32,283,000	2081	149	319	36	2877 46
enumerated—Winterage of Vessels—Ground rent for Cord Wood, &c.												263 29
							Total....................					9375 85

(Signed) JAMES D. SLATER,
Superintendent Rideau and Ottawa Canals.

D.

OTTAWA WORKS, SUPERINTENDENT'S OFFICE,
Ottawa, 27th September, 1858.

SIR,

I have the honor to acknowledge the receipt of your letter of the 12th ultimo, requesting me to transmit to the Department, a statement of the probable amount that will be required for repairs or construction on the works under my charge, until the first day of December next.

For the information of the Commissioners, I would state that during last winter extensive repairs were made at the principal stations, so that a comparatively small sum will be required to prepare the works for the next running season. The repairs at the slides chiefly consist of the replacing of some floor plank, and the renewal of aprons that have been worn out.

I. JOACHIM.

At this station (the highest on the Ottawa) there will be required 6 new stop logs 14 x 14: 28 feet long, containing 228 cubic feet, at 20 cents	$45 80
1 new apron	150 00
Repairing plank on bottom of slide, say	45 00
	235 80

II. CALUMET.

A portion of the bottom planking of the slide, say 100 feet long x 26 feet wide, 5 inches thick = 13,000 B. M. feet, at $13, to be renewed	$169 00

III. MOUNTAIN.

Nothing required at this station with the exception of the renewal of one of the old booms which is worn out and decayed: double timber 15 x 15, 300 feet long, say 938 cubic feet white pine at 15 cents	$140 70
30 iron bolts, 300 lb., at 10 cents	30 00
Planking to be renewed, 8000 B. M. feet, $13	104 70
	274 00

IV. PORTAGE DU FORT.

The works here are in good repair, and will only require about 5400 feet of planking at $13	$70 20

V. CHATS.

The works at this station were thoroughly repaired for last season, but some of the old planking is so much worn that it will have to be replaced, say 7200 feet B. M., at $13	$93 60
Shingling Station-House, and repairing windows	208 00
	301 60

VI. OTTAWA (LATE BYTOWN).

No repairs required for next season's work.

VII. HULL.

The slide here is very much decayed; it has been in operation for upwards of twenty years, but with some repairs it might stand another year, after which I would recommend that it be rebuilt. Replacing a portion of the bottom planking, say 7300 feet B. M. at $13	$94 90

VIII. LITTLE CHAUDIERE.

The slide is in good working order and no outlay will be required; but in the canal above the island at the head of the slide, during the season of high water, there is a side current which has a tendency to carry cribs of timber out of the canal. To prevent this a side pier should be built 280 feet long 10 feet wide and 5 feet high, containing 3920 cubic feet of white pine timber, at 12½ cents	$490 00
Stone filling, cubic yards 407, at 60 cents	244 20
Iron Spikes	50 00
	784 20

As this is an important station I would strongly recommend that the pier above mentioned be built.

TRIBUTARIES OF THE OTTAWA.

I. PETEWAWA RIVER.

The improvements on this river were completed early last spring, and have given general satisfaction. The water was not high this year, consequently there was no trouble in managing the works; but for the high spring floods some additions will be required: such as a short swing-dam at the Bois Dur Station, the lengthening of one of the wing dams at the 3rd chute, the extension of the slide at the crooked chute, the gravelling of the dams to keep them full in low water, and the placing of one course of hard-wood plank at the foot of each of the slides. These repairs and improvements I have estimated at	$1100 00

And when they are completed the Petewawa works will be in a very efficient state.

II. MADAWASKA RIVER.

High Falls.

The works here are in good repair and no outlay will be required.

The slide at Chain Rapids, the dams at Bailey's, Boniface's and Barrett's Chutes, the booms at Calabogie Lake, the slide at the head of Long Rapids, and the dams at Long and Flat Rapids are in good order.

Arnprior.

For renewing a portion of the slide planking, which has been worn out, say	$70 00
Cost of platform and crab for supporting and raising the boom in the Lake at the mouth of the river	80 00
	$150 00

III. GATINEAU RIVER.

The booms on this river are in good order, but one of the old support piers, constructed when Mr. T. C. Keefer was in charge of the works, has been undermined and upset. These were not constructed to stand on a sandy foundation. The cost of a new pier will be about.....	$600 00

Bridges.

The suspension bridge at Ottawa will have to be painted; this work the Commissioners have authorized, and it will shortly be proceeded with at a cost of about, say.........	$140 00
The tinned roof of the toll-house in connection with this bridge, has been damaged by the blasting of rocks in the neighbourhood, the repairing of which and the plaster will cost about	40 00
	180 00

The line of wooden bridges at Ottawa is in a good state of repair.

New Works in course of construction.

The dams at Carillon Rapids were commenced last season, and the contractor pushed the work vigorously until he was driven off by high waters in the winter months, caused by the formation of a vast body of ice at the foot of the rapids, which backed the water over the works. The contractor re-commenced operations this summer, and has now upwards of 2000 feet of the dams completed. A portion of one of the dams (about 500 feet) has yet to be laid in a very swift current. The late heavy rains have raised the water 5 feet on the rapids, and I have just had a letter from the Inspector in which he states that the works will have to be stopped until the next season of low water.

In submitting the above I have the honor to be,
Sir,
Your most obedient servant,

HORACE MERRILL,
Superintendent of Ottawa Works.

RECAPITULATION.

Joachim	$235	80
Calumet	169	00
Mountain	274	00
Portage du Fort	70	20
Chats	301	60
Hull	94	90
Little Chaudière	784	20
Petewawa	1100	00
Arnprior	150	00
Gatineau	800	00
Suspension Bridge	180	00
	$4159	70

THOMAS A. BEGLY, Esq.,
Secretary of Public Works, Toronto.

E.

OTTAWA WORKS, SUPERINTENDENT'S OFFICE,
Ottawa, 25th October, 1858.

SIR,

I have the honor to acknowledge the receipt of your letter of the 16th of August, enclosing a Petition from John Supple and others, praying for improvements on the south branch of the Petewawa River, and requesting me to report on the same.

When the communication was received I was about starting for the Saguenay River, with the view of commencing the work at the long slide, and consequently had to defer my visit to the Petewawa until the present month; on the 7th instant, I left Ottawa for that stream, and was accompanied by three of the slide men and two others, so that the only expense incurred by the trip of the former were their travelling charges. We arrived at the village of Cobden the same night, and next day, the 8th, at the mouth of the Petewawa, on the 9th I procured a canoe and "portaged" to the Little Bois Dur Lake, a distance of about five miles, and the junction of the south branch and main river was reached at noon. I found that it was advisable to proceed to the upper falls and examine the river as I returned. I arrived on the 7th at the upper fall, a distance of about forty miles, on the 3rd day, parties engaged in the lumber trade on this branch of the Petewawa have built slides at the seven falls, but as they have been in operation about 15 years and were originally constructed of slight materials, they are in a bad state of repair, and at some of the stations entirely worn out.

After carefully examining the old works, I found that four of the slides, by being thoroughly repaired, would be serviceable at less expense than that of building new ones, and that two would have to be reconstructed. The following is an estimate of the cost of repairs and new works required :

I. To the upper slide which is 1513 feet long, 260 feet should be added. This additional length will take the place of one of the old slides and be a more desirable improvement, at a cost of	£260	0	0
Thirty gripe bents for strengthening the upper slide, some planking for that slide, repairing the dam at the head and putting in new stop logs, will cost at least	110	0	0
II. I proceeded about a quarter of a mile farther down the river to the high falls slide which is 372 feet long. The dam at the head 77 feet long, being much worn will have to be rebuilt at a cost of	75	0	0
Removing 200 feet of the superstructure at the lower end of slide and rebuilding the same on the old foundation piers will cost	117	0	0
III. About half a mile from the foot of the high falls slide and farther down the stream, is the head of the cascades where the river forms itself into two channels, one of these should be closed by a dam 82 feet long and 6 feet high, at an expense of	35	0	0
In the other channel two glance piers should be built for the purpose of contracting the water and preventing the timber from jamming, the expense of which will be about	18	0	0
IV. Descending about a quarter of a mile, I arrived at the next cascade where a glance pier will be required, which I have estimated at	15	0	0
V. The last cascade is about half a mile further down the river, where a dam 60 feet and a slide 85 feet in length will have to be built for, say	150	0	0
VI. I then proceeded to the fourth slide which is about a quarter of a mile from the last mentioned station. The dam here, which is 100 feet long, must be rebuilt at a cost of about	100	0	0
VII. The fifth slide, counting from the upper one, is about four miles farther down the river, at which station the works are completely in ruins. A dam 78 feet long and 6 feet high and a slide 271 feet in length must be renewed. After making careful measurements and calculations I think this work can be done for	411	0	0
VIII. Having passed down the river about 5 miles further, I arrived at the sixth slide. The dam at this place is in good repairs, the slide when built was 302 feet in length, but a portion of it (130 feet) was since carried away. The			

cost of repairing the remainder of the slide (172 feet) will be about	25	0	0
And of bringing it up to its full length	141	0	0
IX. I then went to the seventh or last slide, a distance of five miles. The works at this station are nearest to the forks, and so much decayed as to render their reconstruction necessary. The dam will be 150 feet long, one half of it 20 feet 5 inches high, and the remaining half 10 feet 8 inches ; the cost of which will be	216	5	0
The expense of building a slide 174 feet in length will be about	161	10	0
Estimated cost of all the improvements	£1834	15	0

To arrive at these figures I have valued timber measured in the work at 8d. per cubic foot, planking reduced to board measure at 65s. per thousand feet in the work, and iron at 6d. per lb. ; these are low prices for work in that wild country where the stations are so far apart with comparatively little to be done at each station, but I am satisfied that the sum estimated will cover the actual cost of the improvements. As the works already constructed by the government on the north and main stream of the Petewawa have given general satisfaction, and as some practical lumbermen, extensively engaged in the trade, who have contributed largely to the revenue of the Province, are connected with the south branch of the river, I would strongly recommend that this branch also be improved to enable them to compete successfully with those lumbering on the main stream. The parties interested would willingly pay reasonable tolls.

If the Honorable Commissioners should decide that these works are to be proceeded with this winter, they should be commenced at as early a date as possible.

In submitting the above
I have honor to be
Sir,
Your most obedient servant,

HORACE MERRILL,
Superintendent of Ottawa Works.

F.

OTTAWA WORKS SUPERINTENDENT'S OFFICE,
Ottawa, 18th December, 1858.

GENTLEMEN,

I have the honor to acknowledge the receipt of your letter of the 15th instant, enclosing a Petition from Messrs. Gilmour & Co., and other manufacturers of lumber on the Madawaska River, praying for certain improvements at Ragged Chute, and also a letter from R. W. Scott, Esq., M.P.P., recommending the construction of the works by the Department. As requested, I beg to submit the following Report:

At Ragged Chute there is a rough, jagged, projecting ledge of rock, which is the cause of much damage to large white pine timber passing over it. Various plans have been proposed for overcoming this obstruction, but I have always been of opinion that the most effectual and economical one would be the raising of the dam constructed in the year 1845, at High Falls, when Mr. Keefer was Engineer of the Ottawa Works.

Taking into consideration the importance of the Madawaska Country, and the large annual revenue derived by government from duties and slidage on the river, which will in all probability be on the increase for many years to come, as a great proportion of the saw logs, required for the extensive mills at the Chaudière Falls, at this city, will be cut on the Madawaska, I would recommend that Ragged Chute be improved by raising the dam before referred to.

The following is an estimate of the expense of the proposed improvement, based on careful measurements and calculations:

67 bents on top of dam, 52 cubic feet in each bent = 3484 cubic feet at 10d		£145	3	4
Additional height of triangular pier A., 750 cubic feet timber at 8d		25	0	0
Stone filling, 1,182 cubic feet	1,182 c. ft.			
Pier B. 520 cubic feet timber at 8d		17	6	8
Stone filling, 2,032 cubic feet	2,032 “			
Raising portion of abutment pier C. (20 x 50 feet) 850 cubic feet, timber at 8d		28	6	8
Stone filling 4,914 cubic feet	4,914 “			
Pier D., 570 cubic feet timber at 8d		19	0	0
Stone filling 2,244 cubic feet	2,244 “			
Pier E., 450 cubic feet timber at 8d		15	0	0
Stone filling, 1,700 cubic feet	1,700 “			
Pier F., 450 cubic feet timber at 8d		15	0	0
Stone filling, 1,700 cubic feet	1,700 “			
	13,773 c. ft.			
510 cubic yard stone, filling at 5s. per yard		127	10	0
Raising bywash 6 feet, 1,260 cubic feet timber at 8d		42	0	0
Plank for dam, 200 feet x 28 feet 5 inches thick = 26,000 feet B. M., at £4 10s. per M		117	0	0
Plank for bywash 32 x 30 feet 5 inches thick = 4,800 feet B. M. at £4 10s. per M		21	12	0
335 bolts 2 feet long, 1 inch round iron for fastening bents on dam = 1,804 lbs., at 6d		45	2	0
606 spikes 20 inches long ¾ inch in diameter = 1,513½ lbs. at 6d		37	6	9
Planking spikes 12 inches long, 2,800 lbs. at 6d		70	0	0
Additional pier required to support upper end of boom in consequence of raising the water.				

Timber cubic feet, 432 at 8d...........................	14	8	0
Stone filling 26 cubic yards at 5s..........................	6	10	0
48¾ inch round iron spikes, 20 inches long = 80 lbs. at 6d..	2	0	0
Estimated cost of improvement..............	£748	15	5
	or $2,995.08		

If the work is to be done this winter, tenders should be received at as early a date as possible, as it will require an energetic contractor to have all completed and ready for the business of the ensuing spring if he commences operations between the 1st and 10th of January next.

In submitting the above
I have the honor to be,
Gentlemen,
Your obedient servant,

HORACE MERRILL,
Superintendent of Ottawa Works.

G.

Office St. Maurice Works,
Three Rivers, January 24th, 1859.

Sirs,

In compliance with your instructions of the 18th instant, I have the honor to submit for the information and instruction of the Department the following Report upon the St. Maurice Works for the year 1858.

INTRODUCTORY AND GENERAL REMARKS.

In the Estimate annexed to this Report, no notice whatever has been made of any new works that may be required upon the River. My reason for this omission is, not because I think they are not required, but because, as yet, I have had no opportunity of visiting the more remote parts of the River, to which, in my opinion, new works should for the present be principally confined. The estimate is limited—with the exception of the house for the Slide Master at Shawinegan—to small but necessary repairs. It is true that several important and beneficial additions and changes might be made upon the works now in operation; yet I consider it a matter of much greater importance, that improvements further up the River St. Maurice and upon its tributaries such as the Matewan and the Vermillion, &c.—by which extensive trade of timbered lands would be opened up and made accessible to the Lumberman—should be made, before directing the attention of the Department to matters of minor consideration. The Department is now, I believe, in possession of the reliable estimates, embracing a part, if not all, of the principal improvements required; and from all the information I could gather from Lumbermen, I am persuaded that the principal portion of the expenditure of money upon the St. Maurice, should, for some time to come, be confined as above stated, to the upper sections of the River and its tributaries.

REVIEW OF THE YEAR 1858.

It does not appear to me to be necessary in this Report to enter into the details of the several stations respectively. All of them, during the past year have been well and successfully worked. The improvements have sustained no injury; nothing has been lost; general satisfaction has been given to Lumbermen; no complaints have been made against any one upon the works; whilst every attention has been paid to the frequent and urgent calls for economy, which has resulted in a reduction of expenditure for maintenance to the extent of $4,222 or about 33 per cent under the year 1857. This diminished cost of the works may not appear at first sight by referring to the books of the Department, but upon examination it will be found that the expenses and pay lists of the "Office Three Rivers" Superintendants and Boom Masters salaries, and certain other descriptions of accounts, were returned to account of *Construction* in 1857, while in 1858 they were charged to maintenance. This will account for any discrepancy that may appear to exist.

No new works were commenced during the year 1858, although three new Piers at the mouth of the River began in 1857, were completed in April last, and the Crib Slide at Grés Falls was suspended about the same time. In June last the Store House at the Mouth of the River, upon Gilmours' Island was removed to the east side, and placed upon land purchased from McCabe for Boom purposes. This property has been enclosed by a suitable fence.

PRESENT CONDITION AND REQUIREMENTS OF THE WORKS.

All the works at the several stations operated the past year may be considered as in good condition; having sustained no injury except such as result from usual wear and decay, some improvements and repairs of little magnitude, as more clearly set fourth and explained in the annexed estimate are hhwever absolutely required. The safety of the Booms, and the lumber that may be in them, renders it necessary that the repairs therein mentioned should be made in March and April next before the Booms are sketched.

The shanty at Shawenagan in which the Slide Master resides is in a very dilapidated state, a new house has been several times recommended and put in the estimates of my predecessors, and it appears to me necessary that it should be made, I therefore put down $800, in the estimate for that purpose making a total $1,205.45.

The Booms at La Tuque during the past year were not stretched, but I am informed by Mr. Baptist, who is making a large quantity of logs above that place, that it may be necessary to extend them next spring. If so, some additional outlay may be required.

During the past year several parcels of land at Shawenagan and the Grande Mère were laid out and surveyed for Boom purposes, as seen by return of plans submitted to the Department on the 4th of October last. No formal possession has been taken of these lands nor any arrangement made with the proprietors. Until these lands and the lands recommended by me and shewn by the sketches sent the Department on the 13th instant, are finally taken and settled for, they will I fear prove a prolific source of annoyance.

FUTURE PROSPECTS.

It has been said that the lumber trade is the first to feel, and the last to recover from the pressure of hard times. Judging from the effects that the almost universal stagnation of trade has had upon the St. Maurice, this saying appears to be well founded. But it should not be forgotten, that such depressions in our staple trade have always been followed by lengthy periods of great activity and prosperity, and there are many reasons for believing, that this revival is not far distant, and that the St. Maurice, will be a large partaker in the benefits that will result therefrom. That the government will be eventually repaid for its fostering assistance to this noble River I think there can be no doubt. The improvements already made including the " Piles road," has already had a very beneficial effect in settling the territory and bringing under cultivation large tracts of excellent lands. Such settlements, while the road and the works are yet in a very imperfect state, augur well for the future. All of which is respectfully submitted.

I have the honor to remain,
Sirs,
Your most obedient servant,

HENRY R. SYMMES,
Superintendent St. Maurice Works.

Approximate Estimate of the cost of the Works referred in the prefixed Report, with details.

Booms at Mouth.		
The ends of many of the Booms are so much used or decayed that it would be unsafe to allow them to go longer without renewing. I have therefore put in this Estimate:		
Renewing 11 Oak head-pieces, for Booms, at $4..	44 00	
1 new Post in Pier, (old one to small) at $16.....	16 00	
		60 00
Grés Falls.		
Iron Straps on the heads of 6 Boom pieces, 212lbs., at 10 cts..................................	21 00	
To prepare Boom for receiving Iron, $4.........	4 00	
		25 20
Shawenegan.		
New house for Slide Master, $800..............	800 00	
To renew a portion of large Pier in Shawenegan Bay, requires 28 pieces timber, 448 ft., at 8 cts..	59 74	
165 Iron Bolts, 850lbs., at 10 cts................	85 00	
A small Anchor Pier, 12 feet square and 6 feet high to replace an anchor that drags, it requires 354 feet of flatted timber, at 10 cts............	35 40	
64 Bolts, 176lbs., at 10 cts......................	17 60	
1½ toises Stone Filling, at $6...................	9 00	
		1006 74
Grande Mère.		
9 rotten Boom Windlasses to be renewed, at $1.50 cts................................	13 50	
Repairs required to house, lathing, plastering, 2 door cases, raising chimney, &c..............	100 00	113 50
	$	1205 44

HENRY R. SYMMES,
Superintendent St. Maurice Works

Three-Rivers, January 24th, 1859.

H.

To His Excellency the Governor General in Council.

Upon the letter from the Secretary of the Buffalo Board of Trade, addressed to the Honorable the Provincial Secretary, and transmitted to this Department, the undersigned have the honor to report:

In that letter the inconvenience and loss annually sustained by the Canadian as well as by the United States mercantile interests, in consequence of the state of the channel through Lake St. Clair is not overstated.

The channel hitherto used is the northern one—it is very circuitous, contracted, and shoal—a fleet of vessels may frequently be seen in it, either wind bound or stopped by want of water—causing great detention and expense in towage, transhipment and lighterage; to such an extent, in fact, that it is only to be wondered at, that those states, which have hitherto been so much more interested, in the navigation of Lake St. Clair, than Canada, have not had the improvement, now proposed, long since carried out—this may, in some measure, be accounted for, by the fact, that, although it is possible to deepen the American channel, still it would remain very circuitous, and be subject to silt up after being dredged.

The undersigned presume that the channel proposed to be improved, and called in the letter of the Board of Trade, "the *South Channel*" is that, known in this province, as "the Middle or Walpole Channel," the upper portion of which is the boundary between the States and Canada, and the lower part is through Canadian territory solely.

It is much the shortest, most direct, and, continuing the line of the river above it, would have the full benefit of current to keep it open.

Until last year, the maximum draft of water, that a vessel could carry through the Welland Canal, was from 8 feet 9 inches to 9 feet, there was no reason therefore to induce the province to embark in the expenditure of improving the channel in question—but, now, that ten feet draft is obtained in the canal, it is very important that all obstructions, to vessels, loaded to that depth, should be removed.

The application of the Buffalo Board of Trade, is not as explicit as it is desirable it should be, as to the breadth and depth to which it is proposed to open the channel, as well as upon other points; but taking it for granted, that these matters of detail can be mutually and satisfactorily decided on, the undersigned would respectfully recommend that Canada should co-operate with the State of New York in the contemplated improvement, on the following conditions:

That the work be done under contract between such parties as the Board of Trade of Buffalo may fix upon, and this Department—that, that Board, in their corporate capacity, or, some two or three of the respectable merchants of that city, become securities for the due performance of the contract, and the opening of the channel to the satisfaction of this Department—that the amount to be contributed by Canada should be one-third of the cost, but in no case to exceed the sum of five thousand pounds,—that two-thirds the expense be first paid by the Buffalo Board of Trade, and that Canada shall not be called upon to pay her quota, until it is fully ascertained that the remaining third (not exceeding the sum already stated) shall be sufficient to complete the work.

The undersigned would urge the adoption of this last condition as they are of opinion the ultimate cost of the work is understated.

Respectfully submitted.

F. LEMIEUX,
Chief Commissioner Public Works.
H. H. KILLALY,
Assistant Commissioner Public Works.

Department of Public Works,
Quebec, 17th April, 1858.

I.

TORONTO, 29th November, 1858.

SIR,

Agreeably to instructions, I recently visited Detroit with a view to closing up the bussiness connected with deepening and enlarging the channel-way through St. Clair "Flats."

The weather at the time being unfavourable, I had no opportunity of again taking soundings through the cut, but the examination made in the middle of October last, when nearly ⅘ths of the extent of work was done, that the appropriation admitted of, together with the details subsequently furnished by Mr. Polglase the person in immediate charge, fully warrants me in stating that the whole of the work has been faithfully and judiciously executed, in the manner previously directed by me.

The channel-way is now 300 feet in width at the upper end, 275 feet at the lower end and of an average of fully 12 feet in depth below ordinary low water mark, as assumed by the Gentleman under whose directions the United States appropriation was expended.

Under this Gentleman's management (Captain Whipple) a lighthouse and leading beacon, ranging in a direction through the cut, and also a Day-Beacon as a guide at the mouth of the river, are in progress of construction, so that when these works are completed, they, together with the buoys already placed along both sides of the cut, will at all times clearly define the channel-way, and in moderate weather render a passage through it, night or day, an easy matter to those in charge of vessels.

This fall, vessels have generally used the new channel, and several have passed during the night, which if I mistake not is something that has seldom hitherto been accomphished in the history of the navigation of this lake.

The benefits arising from the improvements have thus far proved highly satisfactory, so much so, that I was informed the Topographical engineer department, and parties directly interested; contemplate applying for such a grant from the United States Government, as will be sufficient to increase the depth of the channel to 15 feet below ordinary low water,—

urging as a reason for so doing that, by estimates made in the Custom House Department, over $300,000,000, are invested in property annually passing over the " Flats " the greater part of which would be substantially benefitted by further improvements.

Granting such to be the case, it may be fairly assumed, that in view of such advantages, the further enlargement and future maintenance of the channel-way may be safely entrusted to the United States Government.

The work done under the Canadian Grant, commenced on the 26th August, and was continued, when weather permitted until the 30th October.

It consisted principally in increasing the width of the cut, for about 80 feet at the upper end, and 40 feet at the lower end, straightening it throughout on the north side and the removal of a number of bars left during former dredging operations.

The measurements were made and very satisfactorily kept by Mr. Wm. Polglase, a person who was employed for a like purpose when the work was carried on under the United States Grant.

In August................	2872	c. yards were removed.
In September.............	23165	c. " "
In October................	26974	c. " "
Total........	53011	c. yards were removed.

Which at the rate of 37 cents per c. yard as per agreement entered into between the Buffalo Board of Trade and Theodore D. Barton, will make the expenditure as follows, viz:

Dredging 53,011 c. yards at 37 cents............	$19,614.07
Amount paid Superintendent..................	305.50
Amount of Engineers' travelling expenses	64.98
Total................	$19,984.55
Amount of appropriation.............	$20,000.00
Balance on hand........	$ 15.45

I have the honor to be,
Sir,
Your obedient Servant,

JOHN PAGE,
Chief Engr. P. Works.

Honorable L. V. Sicotte,
Chief Commissioner of Public Works.

K.

MONTREAL OCEAN

The following Table furnishes the date of departure and arrival, length of to and from the St. Lawrence,

STEAMER.	Left Liverpool.	Arrived at Quebec.	Passage.		Number of Passengers.	Cargo Inwards.			Left Quebec.
			D.	H.		T. Weight.	T. Meast.	Total.	
Anglo-Saxon	21 April, ..	2 May, ..	11	...	344	166	593	759	22 May, ..
North American...	5 May, ..	17 do ..	11	20	327	337	181	518	5 June. ..
Indian	19 do ..	1 June, ..	12	20	291	263	158	421	19 do ..
Nova Scotian....	2 June, ..	14 do ..	12	11	318	115	587	702	3 July, ..
Anglo-Saxon.....	16 do ..	27 do ..	10	18	218	105	183	288	17 do ..
North American ...	30 do ..	13 July, ..	12	16	170	180	151	331	31 do ..
Indian	14 July, ..	24 do ..	10	1	217	290	408	698	14 August ..
Nova Scotian....	28 do ..	8 August, ..	10	18	215	250	872	1122	28 do ..
Anglo-Saxon.....	11 August, ..	22 do ..	10	20	195	338	793	1131	11 September.
North American ...	25 do ..	9 September..	15	4	231	240	817	1057	25 do ..
North Briton.....	8 September..	20 do ..	12	10	221	116	1028	1144	9 October ..
Nova Scotian.....	22 do ..	5 October ..	12	15	135	360	460	820	23 do ..
Anglo-Saxon.....	6 October, ..	19 do ..	12	20	202	480	474	954	6 November.
Indian.........	20 do ..	1 November..	12	9	119	342	395	737	20 do ..
Average passage.	....	....	12	1	3203	3582	7100	10682	Average

STEAMSHIP COMPANY.

voyage, number of Passengers and cargo carried by this line of Steamers for the Year 1858.

Arrived at Liverpool.	Passage.		Number of Passengers.	Barrels, Pot Ashes.	Barrels, Pearl Ashes.	Minots of Grain.	Barrels of Flour.	Tcs. of Beef.	Hhds. of Brandy.	Kegs of Butter.	Packages of Ind. Rubber.	Pieces, Pine Deals.	
	D.	H.											
3 June, ..	11	10	249	621	279	16987	1650	...	...	....	....	....	
17 do ..	11	8	214	507	117	20425	1469	76	...	....	....	....	
30 do ..	10	13	611	253	6	19239	....	...	...	....	....	....	
16 July, ..	12	11	718	548	215	24760	....	...	...	....	11	....	
27 do ..	9	20	494	405	207	17410	12	...	27	....	31	....	
11 August, ..	10	12	205	930	222	21129	....	...	...	....	79	....	
24 do ..	9	14	175	730	124	24148	315	45	10	....	29	....	
9 September.	12	1	169	458	200	24000	1244	...	...	6	7	928	
21 do ..	9	20	145	626	242	2610	16	...	...	107	13	6940	
7 October, ..	10	18	149	463	208	3204	596	4	...	96	63	533	
20 do ..	10	6	162	604	98	19585	88	...	42	....	202	3394	
4 November,.	11	9	161	631	416	.....	106	40	...	1561	50	9010	30 Boxes Ore.
20 do ..	14	6	195	567	46	11013	2712	...	10	1021	22	....	
1 December. .	11	6	146	1113	309	2100	112	318	10	2339	....	2321	20 do do. 171 Railway Springs.
passage.	11	2	3793	8456	2689	206610	8320	483	99	5130	507	23126	

L.

REPORT ON THE CONSTRUCTION OF THE GRAND BAY AND MAL BAIE ROAD.

SIR,

In conformity to the letter received from Thos. Begly, Esq., Secretary of your Department, under date Toronto, 26th August, 1858,

I immediately commenced work on the Grand Bay and Mal Baie Post road, and as instructed, following Mr. Baillargé's suggestions by commencing where I left off last year by his orders. Five miles from here, going towards Mal Baie with one gang, and placed another gang to make the road to avoid the " Passe des Monts" mountain.

From this side I made a little over five miles, including a few small bridges the most expensive of which cost six dollars—leaving still to make about five miles to complete the road to the Camp de Milieu from here.

The five miles made is 12 feet wide drained where necessary, cleared, levelled and rounded off, cost $572.80, equal to $115.56 per mile.

To avoid the " Passe des Monts" mountain, I commenced at Camp de Bouillianne, three miles on this side of the Mal Baie River, where Mr. Baillargé visited with me, and found a very level track with the exception of one hill at starting and made the road through nine and a half miles to Lac à Bazile, 12 feet wide, complete for a cart to pass, excepting a few boulders to blast next summer, in this distance owing to the number of streams coming from the mountain sides, I had to build ten bridges varying from 20 to 152 feet long, costing $210.60 in all, the highest $82.40, and the lowest $1.60, and thirteen more varying from 10 to 18 feet long costing $37.80 in all. Apart from these streams over which the bridges are built the road is over a dry loam soil, with gravel and boulders, nearly all of which have been removed.

Owing to the lateness of the season I had to abandon the work and make a rough sleigh road for this winter of four miles, to join the old road, which cost $96 or $24 per mile.

There being a good many wind falls in the road and some of the old bridges being in a bad condition, I cleared the road through from this to Mal Baie, so that the postman and travellers would have the road open, which cost $38.40.

The nine and a half miles from Camp de Bouillianne to Lac Bazile, cost $1,250.40, equal to $131.62 per mile.

The work and expenditure stands thus for this year:

Cost of 5 miles completed from this end	$572 80
" opening the 4 miles to join the old road	96 00
" of clearing the road through	38 40
" of the 9½ miles at Passe des Monts	1250 40
Paid for grindstone and expenses taking up	2 10
" for postages, stationery, &c.	6 05
My time and expenses to Mal Baie per steamer; engaging men, $2; tracing road $12	39 00
Paid for 2000 cedar rails to fence road in settlement at Caillouton	20 00

My expenses returning from Mal Baie....................	5 00
My time and expenses to and from Mal Baie to pay men.....	33 00
Balance cash on hand to go on with next year.............	186 00
Total received by me this year....................	$2248 97

(Signed) PASCHAL BOUCHARD,
Superintendent.

To the Honorable,
The Commissioner of
Public Works, Canada.
Grande Baie, 1st Feb., 1859.

M.

TORONTO, 20th January, 1859.

SIR,

I have the honor to report, for the information of the Commissioners of Public Works, the progress of engineering operations upon the Nepissingue division of the Ottawa survey committed to my charge, 1st November, 1858.

I received my instructions on the 16th November, and left Collingwood on the morning of the 20th November in the steamer Rescue with my party, consisting of nineteen men, and stores sufficient for their support during six months, and reached the Indian village of Shi-ba-wah-wing, twenty-five miles west of the mouth of French river, on the same night.

Here it was represented that the navigalion was dangerous, and that no large craft could safely go within ten miles of shore, we however proceeded towards French River, and about six miles from shore fell in with a small schooner which had just landed a party of Surveyors at the east mouth of that river. Our stores were transferred to this vessel, and taking her in tow of our boats, we landed about dusk in the east mouth, and discharged our lading the same evening.

The next day, leaving the party building shanties, to store our provisions in, I proceeded along the shore and passing several deep inlets and false rivers, I entered the main mouth of French River. Had we carried on board of the Rescue, a pilot who knew the river, we could easily have taken that craft, drawing nine feet water, into this broad and deep channel, to the foot of the "Petites Dalles" rapids, three miles from Lake Huron, with perfect safety, as there is no where less than six fathom soundings, and we could see none of those partly submerged rocks and reefs, which render access to the north shore generally so dangerous.

The approach from the east is difficult, but westward of the Bustard Islands which protect the mouth of the river from the south and south-west gales, there is a clear navigation, and all that is required to make a perfectly safe harbour, is to buoy out the channel, and establish a lighthouse on some prominent point.

When I arrived (20th November) the French River was free from ice, and remained so for a week, we took advantage of this to get a three months' supply of provisions by boat up to the "Grandes Recollets" falls, nineteen miles from Lake Huron. The ice then began to form, and during the next fortnight we made but comparatively small progress, as the ice was too strong to admit the passage of boats without much cutting, and not strong enough to walk upon; we, however, by cutting ice as far as we could, and then drawing our boats over the strong ice on sleds, and launching them when it became too weak to bear, contrived to get, our provisions up to the "Rapids de Parisien" thirty-six miles from Lake Huron. I have been thus particular in describing this part of our work as it has occupied much of our time, and taxed our energies more severely, than the engineering operations, which we came to French River to perform.

By the 20th of December the ice in the river was sufficiently strong to bear, except near the rapids; and we then commenced running a continuous transit line on the ice, and taken levels for the purpose of making a reliable map and section of the river, all previous maps and profiles being erroneous in many respects.

At the same time we took soundings enough to give the general depth of the river, and at the probable site of artificial works, such as the strength of the ice allows.

More than this I have not attempted, conceiving it to be a waste of time and money to take soundings through the ice for the purpose of discovering obstructions to navigation, as the process is tedious and usually unreliable: for this reason, that the submerged needle pointed rocks that are most dangerous to vessels, are nine times out of ten, overlooked by this system.

I therefore confine my soundings to the places where I wish to estimate the probable amount of submarine rock excavation; and I propose to discover the obstruction to navigation by sweeping the channel, after the breaking up of the ice in the spring, to such depth as may be required by the scale of navigation to be adopted.

In my instructions bearing date of 16th November, 1858, it is stated that "the survey is to be prosecuted with the view of ascertaining the practicability of opening a ship communication between the St. Lawrence and Lake Huron through the Ottawa waters; and not for the purpose of making a minute and highly accurate hydrographic chart of the river, except so far as the same may be subservient to the first named purpose."

Keeping this object steadily in view, I have endeavoured to spend no more time, on the survey of French River, than was absolutely necessary; but to push on to that point where I conceived the most investigation was required.

As soon as the ice would allow, I left the party at work at French River, and travelled on foot all round the shores of Lake Nepissingue, and carefully examined the "height of land" between that lake and the Ottawa waters, and then returned to the mouth of the river, having travelled some two hundred miles.

From this reconnaisance, and from such instrumental examinations as have been completed, I am able to report that the improvements of the French River, from Lake Huron to the east end of Lake Nepissingue, will be a comparatively simple process, and one of less cost than has been generally supposed.

The total fall of the river from the level of Nepissingue to that of Lake Huron is between fifty-five and sixty feet, and the distance fifty miles. It is not rapid ; but consists of long straight reaches of still water, of great depth, separated from each other by natural dams of rock, over which the river pours in short rapids.

Sometimes it is contracted to a channel of five or six hundred feet in width, with perpendicular rocks on either side, from fifty to a hundred and fifty feet high ; and again it expands into broad lakes studded with islands ; but everywhere, except in the vicinity of the rapids, deep and still. The obvious mode of improvement is to increase these natural dams to such a height as would drown out all currents which could interrupt navigation, and connect the pools, thus formed, by locks.

The natural facilities for the construction of both locks and dams, are very great, and the immense volume of water discharged, renders tight dams unnecessary, always an expensive and perishable mode of construction.

The regimen of the French River is very uniform, the average between extreme high and low water not exceeding five feet; while the multitude of islands will serve as ice breakers, and prevent any destructive movement of the ice ; thus removing the two principal objections to a navigation of the character contemplated.

There are four obstructed points in French River: the "Petites Dallas" an insignificant rapid, three miles from Lake Huron ; the "Grandes Recollets" Falls, sixteen miles further up, and of about seven feet in height; the "Parisien" Rapids, thirty-six miles from Lake Huron, and the "Chaudière" Falls, at the outlet of Nepissingue.

Six locks of ten feet lift, with the requisite number of dams, would open a good inland navigation to east end of Lake Nepissingue, eighty miles from Lake Huron.

Of the cost of this improvements, I shall be prepared to speak in my general report hereafter.

When we come to the east end of Lake Nepissingue, and cross the height of land between it and the Ottawa waters, we encounter, for the first time, some engineering difficulties.

Trout Lake which lies about six miles from Lake Nepissingue, is twenty-three feet above it, and is the summit level.

It is a mere basin in the hills, with no streams running into it, and a limited area of country from which to drain the rain-fall, and it is certain, that the supply of water, from that source, would not be sufficient for the purposes of this navigation.

Fortunately, however, there are several methods of overcoming this difficulty, none of which would involve an amount of work which could be said, by any means, to render the scheme impracticable, or even more costly than similar engineering works executed within our own times. Considerable instrumental examinations will have to be made before I can speak definitely upon the works that may be necessary, and the cost of them.

During the two months which have elapsed since my party has been upon French River, they have got, to within a few miles of Lake Nepissingue, provisions enough to last until the opening of navigation ; and they have surveyed the obstructions to navigation to the second "Parisien" Rapid, obtaining such data as will enable me to estimate the cost of whatever improvement may be decided upon hereafter, and they have also made a plan and section of the river for the same distance.

A few weeks now, if the ice keeps good, will enable me to finish my winter operations on French River. I will then press on with the examinations of the height of land, so that I may be able to report to the Commissioners at as early a date as possible, upon the question of supply.

I have the honor to be,
Very respectfully,
Your obedient servant,

THOS. C. CLARK, C. E.

N.

OTTAWA SURVEY, ALLUMETTES DIVISION.

MONTLY REPORT.

Des Joachim, *November 30th*, 1858.

SIR,

In accordance with my instructions, I have the honor to submit my Report for the month of November of the progres made by the party under my charge.

The notification of my appointment was received on the 2nd of November, and my acceptation forwarded on the 3rd, on the 6th I received telegram from the Honorable P. M. Vankoughnet directing me to make arrangements at once to commence survey with only one half of party as proposed in accordance therewith, I at once proceeded to forward provisions and stores to this place as the most central and despatched Mr. Monsell and three axemen to Portage du Fort with the instruments and canoes to guard against the possibility of accidents on the long Portage by the other route having completed all by the morning of the 10th, I telegraphed to you, asking for intructions, on the 15th I received telegram from you asking the names of party as reduced by previous advice forwarded the required information on the 16, and received final instructions to proceed on the 17th.

In accordance with these instructions, I left Ottawa on the 18th and arrived here on the evening of the 19th, being joined next day by Mr. Monsell with the cannoes and instruments, final arrangements were made for proceeding to the Matawan.

The party left the head of this Portage at 1 P.M. on the 22nd and reached the foot of McLarly's Rapids at 5 P. M. next day the 23d, the Rocher Capitaine Portage was passed and encamped for the night five miles above it having sent back one of my boats for provisions to the Deux Joachim, it became necessary to transport the supplies and camp equipage in the remaining two canoes, one of 3¼ fathoms the other 3½, consequently two trips became a matter of necessity, so that we were obliged to spend the

24th at Deux Rivière, next day we were only able to reach the foot of Levellier Rapid but on the 26 we finally encamped six miles above it, at the allotted station of the first party for thc winter, the 27th the weather prevented all attempt at working and it was not till the 29th, the first party under Monsell, actually got to work, the 30th it blew a perfect hurricane, My proceedings since then properly belong to the report for the current months.

In des cribing the portion of the work now covered by my party, I would remark that it is almost unknown but presents no particularly difficult features to the Engineer or Surveyor beyond the absence of inhabitants and the consequent necessity of being obliged to rely on our own exertions for provisions and all materials. The Upper reach when the first subdivision has been placed, will require the most careful examination as it is obstruded by shoals and boulders to a considerable extent. From the head of the Levellier Rapid to the foot of the Matawan Rapids is a distance of 17 miles, thence to the mouth of the Matawan is 2 miles, total 19 miles now under Survey.

From the Levellier which is the Head of the Rapids known as the Deux Rivières to the foot of these rapids, is 3 miles thence, to the head of Rocher Capitaine is ten miles requiring only such examination as will place the fact of its character beyond doubt.

The Rocher Capitaine Rapids are 2 miles in length, Maribou and McLarly's Rapid 3 miles, Deux Joachim Rapid 2 miles and 11 miles obstructed channel ; from the fort of Deux Joachim to mouth of Deep River a distance of 27 miles a very slight hydrographical examination is necessary.

There is thus 79 miles of River course to be suveyed that has never been submitted to the test of instrumental investigation of which over 30 miles must be *closely and fully examined.* I am of opinion that it will not be possible to carry on field operations after 31st March or the middle of April at further and thereupon have made my arrangements accordingly.

I have been influenced by the consideration that the portion of the district allotted to me, extending from mouth of Deep River to Portage du fort has been accurately examined already and therefore that all my exertions should be directed to the completion of the portion now covered ; at the same time, I beg respectfully to remind you that in my letter of acceptation bearing date 3rd November, I took the liberty of directing your attention to the state of this lower portion as a part of the topography and some other trivial examinations were required to complete it. I have since learned that a survey of that part, between Portage du Fort and the Calluncet Falls a distance of some ten miles has been made during last summer and autumn by Mr. T. E. Norman, and can probably be made available for the purpose in view. I have therefore to request that all documents relating to M. Shanly's survey of this Division, with the plans, and those of Mr. Norman's recent survey may be placéd in my hands, so that I may be enabled to form the the necessary Report on the data furnished.

As I have been engaged making the survey, referred to under Mr. Shanly, I know exactly what is wanting to complete it and therefore will expend no more time or labor than is necessary to accomplish that end. At the same time, it will be necessary to allow me further assistance to the extent asked for, by my letter of 3rd November, because I wish to complete all the field work before the middle of April, in case you should decide on allowing me the requisite means to prosecute this work, I shall be able to place in your hands before the end of July next rhe Report, Plans and Estimates of the whole division embracing a distance of 150 miles.

From the necessity existing of constantly watching the favorabie time for getting particular parts of the work completed, it will be impossible for me to fournish Reports or reply to letters &c., as punctually as the rules of the Department requires.

I shall use all diligence to accomplish the work intrusted to my care in an expeditious, economical and satisfactory manner.

I have the honor
to be, Sir respectfully,
GEORGE H. PERRY.

Hon. L. V. Sicotte,
&c., &c., &c.

O.

OTTAWA SURVEY—ALLUMETTE DIVISION,

Monthly Report.

Des Joachim, 31*st December*, 1858.

Sir,

My last monthly Report detailed the course of proceedings to date, I have now to continue the narrative of proceedings to the date of the present document.

From 1st December to the 10th inclusive, I was engaged laying out work from the junction of the Mattawan to Fort of Des Joachim Rapids, a distance of 52 miles. In that period there was only 5 working days. From the 10th to the 19th inclusive, we had but 6 working days, and from 20th to 26th only 2½ days. The last week of this month was favourable and the principal part of progress effected during that week.

A survey of Des Joachim Rapids has been made as well as about two miles of River Course above the rapid. A survey has also been made of a chain of lakes to the north of the Portage, offering peculiar facilities for the site of the lateral canal necessary to overcome the rapids. The length of this survey is five miles, of which fully 3½ miles are lakes.

On the upper portion of this division the surveys had been completed for five miles above L'éveiller's Rapids, so that over ten miles of river has been surveyed in addition to the examination of the lateral project.

The river will not be closed so as to permit soundings before the first of February.

I have to request that those instruments referred to in my letter of 15th ult. may be forwarded to me. I have to report that Messrs. Austin and Buchanan joined my staff, and are at their respective posts.

I would respectfully urge on you the necessity of considering the requisition in my last Report, for an addition to my staff. I work one of the sub parties myself and any day I am compelled to devote to the ordinary routine duties, is a serious loss, which an extra hand would effectually prevent.

It is only by incessant toil and labour that this work can be completed by the end of the proper period, and my party would be seriously retarded by loss of even an axeman's services. I have to employ one person, Mr. C. E. Perry, to clerk for me in the field, and, require another while attending to my own duties.

During my exploration of the river, I found in store at the Deux Rivières fifteen half barrels of pork belonging to the former survey. It is now in a damaged condition and should be sold for whatever may be offered. If you wish to have it disposed of please, send the necessary orders.

I have the honor to be
Sir,
Your most obedient servant,

(Signed,) GEORGE H. PERRY.

Hon. L. V. Sicotte.

P.

OTTAWA SURVEY.

Arnprior, 1*st December*, 1858.

GENTLEMEN,

I have the honor, agreably to instructions, to report the progress of the Survey, under my charge, to 30th November.

In order that the work performed under Mr. Shanly might prove available, I was obliged at once to make arrangements to complete the Trigonometrical Survey, on which the several lines of soundings altogether depend; whether these soundings have been taken sufficiently in detail to enable me to furnish an Estimate, as called for by you, I cannot determine, without having access to the "Field" Books.

Much time has been necessarily expended in finding out the stations of the former Survey, this, in connection with much annoyance from ice, has retarded our progress.

I have organised but a small party (eight) as I shall have no difficulty in procuring additional hands, should I require them.

The pay list for November I shall forward as soon as the blank forms, which I applied for yesterday, arrive.

My monthly average expenditure will not exceed the amount I stated in my letter of 5th November, viz.: six hundred and forty dollars ($640.)

The navigation of the Upper Ottawa closed on the 25th November.

I have the honor to be,
Gentlemen,
Your most obedient servant,

(Signed,) W. B. GALLWEY.

The Honorable
The Commissioner of
Public Works, Canada.

Q.

ARNPRIOR, *3rd January*, 1859.

GENTLEMEN,

I have the honor to report the progress of the survey, under my charge.

Advantage was taken of the first ice to complete the soundings of that portion of the *Lac des Chats* left unfinished on the suspension of the late survey, and as I find, on reference to Mr. Shanly's report, that "consecutive and close soundings" have been taken on the other portion, I would not feel justified in incurring further expenditure.

The river has therefore been sounded throughout, from Ottawa to Portage du Fort, and all the work on that reach, for which the winter affords facilities, has been performed.

Owing to the depth of water contemplated (10 to 11 feet) a very close examination of the "Chenaux," and "Chats" rapids is necessary, and I regret to say I have already lost much time in trying to perform a duty which should be done after the breaking up of the ice; the rapids are not only dangerous, but the information gained unsatisfactory. A very good survey of the shore lines, and Islands of these rapids has been made by Mr. Norman, and a copy of his plans would be valuable to me.

I have the honor to be,
Gentlemen,
Your obedient Servant,

W. B. GALWEY.

The Honorable
The Commissioners of Public Works.

R.

Toronto, *12th January*, 1859.

TO THE HONORABLE THE COMMISSIONERS OF PUBLIC WORKS.

GENTLEMEN,

In compliance with your instructions, I have the honor to submit the following Report on the continued Survey carried on under my charge, but lately suspended by order of the department; of that portion of the River Ottawa embraced between Chats Lakes and the foot of the Calumet Falls, a distance of some fifteen miles.

The survey was commenced on the 20th July last, and the out door work closed on the 30th October.

Although it might be supposed that my instructions confined me to the survey of the Islands rendered necessary in consequence of the very numerous applications from various parties for them, and to the River for water power connected therewith, I did not limit the survey to such objects only, but conducted it, so as to render it, subsidiary to the deciding upon the mode for the improvement of the navigation for that extent of the river, I was induced to take this course in consequence of the practicability of the survey being made available for both purposes at a comparatively very trifling additional expense, which I think will at once appear, when it is considered that a detailed survey of so many miles of the most intricate portion of the river has been effected within a space of three months and at the cost of but £475.

Any report on the hydraulic power on this reach of river is so dependent on and so closely connected with the survey for the improvement of the Ottawa for navigation, that I am almost necessitated to confine myself to its present capabilities. However the map now furnished with the section thereon will afford all the information with regard to levels. distances, &c., which will at any time be required for the locating of hydraulic privileges, and shewing the extent to which they may be granted, and by clearly defining the extent and position of the numerous Islands, will in future prevent the difficulties heretofore encountered by the Department, owing to the numerous applications made by several parties for the same Island, and such Island being applied for under different names, and there being hitherto no surveys sufficiently detailed or correct to furnish information as to the position or extent of the Islands when applications were made to lease or otherwise occupy them. . This would be further facilitated by naming the Islands.

By referring to the report I had the honor to submit to the Department in March last, I pointed out the most efficient and economical manner in which the enormous extent of water power at the Chats could be rendered available, and from increased opportunities, I have since had of examining generally that portion of the River, I have ascertained that the dams I have recommended for the purposes of Hydraulic power would be most important and would be available for the proposed improvement of the navigation, as by means of this and the completion of a channel through Morris Island (which nature has half made) and another through Great Chats Islands, a line of navigation from the Chaudière to Chats Lake, could be formed, having the advantage of being more direct, facile and economical, and having a greater depth of water at either end when contrasted with the present incomplete Chats Canal. It appears to me to be a question for serious consideration, whether in the event of the navigation of the Ottawa upon an enlarged scale being adopted at any future period, the course I have alluded to should not be followed and the present Chats Canal be converted into a Timber Channel.

After leaving the Chats Lake, the first portion of the River requiring attention in a Hydraulic point of view, is that at Portage du Fort, for although there is a Rapid below it at the Chenaux, immediately on leaving Chats Lake, yet from the fall there being but about one foot in low water, varying to as great a height as five feet at high spring water, I consider the facilities that exist there (in the natural state of the River) are not such as to justify outlay merely for Hydraulic purposes. But, should the improvement of the navigation of the Ottawa be undertaken, in that case it would probably be effected at this part by adopting the Channel known as the

Middle or Canoe Channel as that for the trade, for which it could be well adapted by the construction of a lock and connecting, by means of dams a few of the small Islands at the head of it. This would enhance the value of the Chenaux Islands for Hydraulic purposes.

By the selection of this course in connection with that which I have suggested in the improvement of the River at the Chats, the dam at the head of the Chats which has been recommended would not be required, and as this dam might cause the flooding of the low lands surrounding Chats Lake, throw backwater on the dams and mills on the Mississippi, Madawaska and Bonnechere and thus involve the Department to claims for damages which, with the experience of the Beauharnois Canal claims, would be a matter for serious consideration.

The lock and dams at the Middle or Canoe Channel would create a good navigation with abundance of water to the slack water at Goulds Landing and to the village of Portage du Fort. From either point to the foot of the Sables Rapids a distance of about six miles, there are a series of swift currents and rapids, with a total fall according to my estimate of about 11 feet, although the section on the map, drawn according to the levels furnished me and certified to by Mr. G. H. Perry, would make it about 16 feet. The five feet of difference, between our levels, occurring immediately below the Split Rock Rapid.

The improvement of the reach of River, from Portage du Fort to the foot of the Sables Rapids, I am inclined to believe can be effected without much difficulty by means of probably but one lock, and a dam of no considerable extent. There is a ravine from below the village of Portage du Fort to Bently's Bay, a distance of little over half a mile, through which the water, I am told, makes its way in time of flood. It appeared to me very desirable to run a line of levels through this ravine, which could be effected within a very short period, and which I would have done but for the very peremptory manner in which I was directed to suspend my operations.

From the foot of the Sables Rapids to the head of the Calumet is a distance of about six miles, in which the principal falls are "4′ 3″ at the Sables," "13′ 3″ at the Mountain," "6′ 6″ at the Dargis," and "56 feet at the Calumet."

The Hydraulic power at the Sables is of great extent and is capable of being made available for a variety of establishments at small expense, by means of short dams connecting the Islands in that part of the River.

The fall at the Mountain being three time as high as that at the Sables, the power there is greater, but it is not at all so available as that at the latter, inasmuch as the area on it which could be applied is very limited, owing to the narrowness of the River there, and the high land being close to its banks on each side.

The fall at the Dargis is but half that at the Mountain, in other respects the facility of making use of the water power there and the extent of the available area for which may be looked upon as much the same.

As my survey terminated at the foot of the Calumet Falls, I am not enabled to state the extent of power which could be derived from the mighty mass of water which tumbles down, in a short distance, the height of 56 feet, but taking into consideration the deep gorge through which these waters thunder, the very high and perpendicular sides of the gorge, it seemed to me from the cursory view I had of it, that comparatively but little advantage exists there for the erection of Machinery, except in a few positions towards the head of the Falls.

As to the channel or course which it is probable will be found the most desirable to improve the navigation of the River from the Chaudière Lake to the foot of the Sables Rapids, my opinion will be found in this and my previous Report of March last. It appears to me for that reach of the River nature leaves but little choice.

The River divides at the foot of the Sables Rapids into two great branches, one, the Calumet Channel, and the other, the Rocher Fendu Channel, and from the great obstructions and difficulties to be encountered in either, it will require much experience and consideration to select the proper location for the Canal. From any Reports I have seen, attention would appear to have been confined to the former, but taking into consideration the character of the gorge and the great fall concentrated in it, it seems to me that the Rocher Fendu Channel is worthy of more particular examination. The fall is more distributed and the distance by it is some 6 or 8 miles shorter than by the Calumet Channel.

The same cause which prevented me from reporting more fully on the ravine at Portage du Fort, namely, the premature close of my operations, prevents my furnishing the Department in detail with the extent of the water power and the best mode for making use of the almost unlimited power which nature offers for the driving of Machinery, by means of the water of this great River, not having ascertained, as was my intention, the volume of water from soundings, which I intended taking in the winter, and the rate of current at lowest water.

My instructions referring more immediately to the ascertaining the extent of water power which could be created and the best mode for rendering it available, my attention was of course chiefly so directed, but as I have already stated, I have throughout endeavoured to make the survey intrusted to me as generally serviceable as possible.

On examining the documents forwarded to me with my instructions, applications for Islands, &c., situated in the Ottawa River, I find that had a reliable Survey been made of the Chats, considerable revenue might now be derived therefrom. Now, I would urge strongly on Government that such a survey of this portion of the River has been made, the necessity for laying the Islands out into lots as suggested in my Report of March last.

It is a matter for serious consideration whether any of the Islands situated between Chats Lake and the Calumet should be disposed of until such time as the location of the Canal is decided on. Already a number of persons have squatted and built on the large Island opposite to Portage du Fort, and unless the Government soon takes steps towards asserting their claim to it, large demands for compensation for such improvement will no doubt be made.

On every tributary of the River below the City of Ottawa, and on the Ottawa itself, at the City, lot after lot is being eagerly bought up by persons who bring wealth to the Country by establishing Mills and Factories in it. But once above the City, experience shews that few will avail themselves of the unlimited water power so invitingly set before them by nature, until such time as means of exporting their manufactures present themselves, less expensive than the present. Such means of transport must be found either in the Brockville and Ottawa Railway, which first touches the River at Arnprior, or by obliterating the present causes of expense, the Rapids, by canalling.

In glancing over the Maps of this fine Country (the Ottawa,) the mind becomes strongly impressed with what may be its future: with its large mineral resources, as yet but partially developed, but known to be of great extent and value. Unequalled by any Country in the world for its luxuriant growth of Timber, especially of Red and White Pine, having its Grand River with Tributaires surpassing in volume the largest Rivers of Europe, and the advantages of unlimited water power which they do not possess. An extent of Agricultural Country capable, on careful examination, of supporting a population of 8,000,000 of inhabitants. The prospect of a water communication of immense extent which must eventually, with a connecting line of Railway, form a continuous communication between the Atlantic and the Pacific Oceans. Thus bringing to our door not only the immense trade of the Great West, but of products of India, China, Japan and Australia. And as this vast tract must from its capabilities become at no distant period a large Manufacturing Country, too much importance cannot now be placed on the settlement of its numerous Islands and the proper developement and the locating of its great water power.

In conclusion, I have to acknowledge the able services rendered me by Mr. Geo. E. Lindsay and Mr. Bruce McConnell, and the other Gentlemen who composed my Staff of Assistants, each of whom I found at all times prompt, careful and attentive to their duties.

I have the honor to be,
Gentlemen,
Your Most Obedient Servant,

THOS. E. NORMAN,
Civil Engineer.

TORONTO :—Printed by STEWART DERBISHIRE & GEORGE DESBARATS,
Printer to the Queen's Most Excellent Majesty.

F. Braun

GENERAL REPORT

OF THE

COMMISSIONER OF PUBLIC WORKS,

FOR THE

YEAR ENDING 31st DECEMBER, 1859:

FURNISHED

In compliance with the provisions of the 28th chapter of the Consolidated Statutes of Canada, section 24.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

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REPORT

OF THE

COMMISSIONER OF PUBLIC WORKS

FOR THE YEAR 1859.

To His Excellency the Right Honorable Sir Edmund Walker Head,

GOVERNOR GENERAL OF BRITISH NORTH AMERICA, &c., &c.

MAY IT PLEASE YOUR EXCELLENCY:

In accordance with the provisions of the 28th chapter of the Consolidated Statutes of Canada, section 24, the undersigned, Commissioner of Public Works, has the honor to submit to Your Excellency the following General Report upon the Public Works and Buildings, and the other branches of the Public service under his control and management, for the year 1859.

Before proceeding to advert to the condition of the various Public Works in detail, it may not be improper to observe, that during the past year attention has been closely directed to the immediate administration and management of the great Works of Inland Communication, as affecting their productiveness as a source of revenue, and especially to a consideration of the future policy proper to be pursued with reference to those works in connection with the commercial interests and progress of the Province.

The reorganisation of the Department, under the Bill of last Session, necessarily entailed some derangements during its progress, but the chief requirements of the Law have already been carried into effect, with, it is to be hoped, but little inconvenience to the Public Service.

The general expenditure of the Department has also been the subject of careful examination, with the view of effecting such reductions as the state of the Finances called for, and the efficient performance of the service would permit.

It would however have been unwise, to have entered on any general system of reduction, without a full knowledge of the items in respect of which it could, with propriety, be applied, and to that end, an analytical statement of the expenditure has been prepared, distinguishing—1stly. Those items which are properly permanent charges on the Department, such as Staff, Superintendence, and Management;— 2ndly. Those which, though permanent, are liable to fluctuate in amount, such as maintenance, repairs and supplies for, or the renewal and extension of, existing works; and—3rdly. Those, of which the extent and outlay may be controlled from year to year, such as new works authorized by the Legislature or placed under contract.

The gross expenditure, during the past year, as will be seen from the following statement, has been $929,231.09 or deducting the advance authorized by Parliament to place the Northern Railway in repair, and which is since repaid, $869,231.09; while that of 1858 was $1,071,014.38, shewing a reduction of $201,783.29.

The following statement exhibits the various items of Expenditure under their respective heads:

1st. Permanent charge of Head Office and General Staff of Department, Superintendence and Management of various Works, including portion of charges currency incurred on construction account - - - - - - -	$182,925 38
2nd. Ordinary Repairs of Works - - - - - - - - - - - - -	88,646 33
3rd. Extraordinary Repairs, extension or enlargement of existing Works -	75,751 39
4th. New permanent Works, such as Court Houses, Custom Houses, Roads, Light Houses, Harbours, &c., chargeable to construction account -	349,404 41
5th. Old claims for damages, and those arising out of Contracts existing against Department, settled during the year - - - - - - - - -	81,146 67
6th. Tug and Trinity House Service, and Postal extension, Lower Provinces -	67,483 79
7th. Removal to Quebec - - - - - - - - - - - - - - - - - -	23,873 12
8th. Northern Railway (Legislative advance to). Since repaid - -	60,000 00
	$929,231 09

Attention has also been directed to the position of various remote works, such as Timber Slides, Dams, Booms, &c., originally constructed for the public convenience, but which might now more properly be handed over to the Local Municipalities or disposed of to Private Companies. The cost of management and repairs, and the frequent demand for further large outlay in the way of extension or maintenance of these works, without any commensurate Public advantage, render the same policy advisable in regard to them as has already been pursued with respect to Roads and Bridges in various sections of the Province

But while it is believed that by these and other means which will be steadily followed, a considerable reduction in expenditure may be effected, the question of present administration is subordinate in importance to the adoption of a sound Policy which should hereafter be pursued in reference to the more important works of Inland communication, so that they may in some greater degree fulfil the National objects for which they were undertaken. It is of most serious concern, to ascertain the true causes to which the continued falling off in the revenue of these great Public Works may be attributable, and to consider the means by which they can be made, not only more productive in themselves, but more widely beneficial to the Province, by securing that share of the great and ever-increasing commerce of the West to which its position entitles it. The great facilities of transport, which the combined system of Water and Railway communication in Canada affords, have produced increased activity on the part of those interested in Foreign routes, to retain the carrying trade they have hitherto engrossed, and continued efforts on our part will be required to develope to their utmost extent the natural advantages which Canada possesses, and keep pace with the requirements of the day. The necessities of Trade, and its active competition, demand the most direct and cheapest routes, and all minor considerations will ultimately give way to these great requisites of successful commerce. And with reference especially to grain, the great article of transport, being both bulky in its nature, and low in value in the Districts surrounding the great Lakes where it is produced, cheapness of Transport is peculiarly important, and is becoming yearly more so, as the regions of production get more and more remote from the place of consumption. The geographical position of Canada, and the means she possesses of providing to the interior of the Continent a combined system of water and railway communication unrivalled in the world for extent and safety, must, it is believed, eventually give her the command of the Trade, if the right means are taken to secure it. The effort becomes the more pressing, inasmuch as during the interval of nearly ten years, which elapsed between the completion of the existing water communications throughout Canada, and of the Railway system, which has only within the last few months attained accomplishment, the Carrying Trade has been nearly entirely absorbed by Foreign routes—a deprivation, which, if suffered to continue, will be deeply injurious, not only to the revenue of the Public Works, but to the many new and important Enterprises which have meanwhile come into being, and whose success so intimately concerns the general prosperity of the Province.

Every year during which the diversion of this Trade continues, adds to the difficulty of regaining it, the more so, as the influence of the great commercial centre of the United States, the City of New York, from which a large share has to be wrested, permeates to the remotest regions of production. And it is not to be forgotten, that in addition to this influence, Canada has to contend with the immediate rivalry of the State of New York itself, whose direct pecuniary interest in the success of the rival routes is not secondary to that which Canada possesses in the prosperity of its own.

In seeking for the causes to which the diminished revenue on the Public Works already adverted to, is due, the fact that so many other new means of Transport through the Province exist, has not been overlooked. Some idea may be formed of the extent to which the Railways have attracted the down trade to themselves, by reference to the following returns of freight carried Eastward by them during the last year. These returns having been obtained from the proper officers of the various lines, may be regarded as reliable.

The Welland Railway carried (chiefly grain) - - - - - - - - - - - - - - - - - -		14,713 Tons.
The Great Western do. do :—		
Through freight to Suspension Bridge - - - - - - - -	22,700	
do. to Toronto 8,717 and Buffalo 2,984 - - - - -	11,701	34,401 do.
The Northern Railway to Toronto through - - - - - - - - - - - - - - - -		24,897 Tons.
The Grand Trunk:		
Through and local to Montreal - - - - - - - - - - - -	55,763	
Of which was carried by Northern R. R. and delivered to Grand Trunk at Toronto, already entered above - - - - - - - - - -	12,778	42,985 do.

Grand Trunk, brought to and passing Montreal not included in the foregoing	23,918 Tons.
Buffalo and Lake Huron Railway, to Buffalo Foreign, 4500 tons and Local, 51,800. - - -	- - - - - - 56,300 do.
Total Tonnage of Freight eastwards carried by Rail - - - - - - -	197,209 do.

Yet this diversion from our Canals to our Railways is subordinate to the consideration, that taking the aggregate amount of produce carried on all, and keeping in mind the marvellous increase in the Western Trade, the share which Canadian channels now command is entirely disproportionate to the advantages which our geographical position and great Works present. It is true that a large falling off has taken place in the revenue of the New York Canals from the year 1851 downwards—the Tolls being $3,703,999.00 in 1851, and only $1,812,280.00 in 1859; yet this is due in a great degree to the lowering of the Tolls, for the Tonnage has remained the same, while the Tonnage of all the Railways, notwithstanding the protective legislation in favour of the Canals, and the restrictions in regard to the transport of freight at certain seasons of the year, has largely increased.

The falling off last year on the New York Canals, making due allowance for the relative reduction of rates on them and on our own, is by no means in the same proportion as that on the Canadian Canals.

But in view of the efforts which are now being made by the Province to demonstrate practically the manifold advantages which the St. Lawrence Route, whether by rail or water, possesses over all others, as the most direct channel of communication, not only between the West and North-West States of America, and Europe, but between those States and the Eastern States of the Union, it becomes matter for special investigation whether the circumstances, which fixed the scale of navigation at its present limits, have not so far changed as to demand an enlargement of the Works, not only on the ground of rendering the enterprises themselves productive, but as a measure necessary to secure that trade, of which they would be the natural outlet;—and how far, also, it may be expedient to provide new avenues of communication, especially with the Eastern States.

The undersigned would not recommend that any Policy, involving a certain and large expenditure, should be entered upon precipitately, nor without the fullest examination and enquiry into the propriety of its adoption, by a minute investigation into the present course of Trade, and an intelligent appreciation of its future tendency. It ought to be shewn that so far as human foresight can anticipate, the result will not issue in merely adding to the existing burdens on the public, but that it will secure a fair return either in the shape of direct revenue from the works, or by an expansion of the Commerce of the Province.

It is undoubted that a very large share not only of the Western Foreign Trade in Grain, but of the Canadian, finds its way to the Sea Board and the Eastern States through American channels. It is equally certain, that the best and cheapest channel of general commerce as regards transportation, is natural navigation, such as by Sea, Lake or River, in contradistinction to the artificial navigation by Canals—the latter requiring a heavy outlay for working, superintendence and repairs—in addition to the original cost of construction, and imposing a corresponding charge for their use. On the transport of bulky articles, the larger the vessel, and the longer the voyage, the more cheaply in proportion to the distance will the freight be carried. Now, it is equally undeniable that Canada possesses, through her natural navigation—which, (with the exception of 69 miles of Canal) embraces the entire distance from Chicago to the Ocean, the means of supplying these advantages in a degree which the United States, on account of their geographical position, cannot attain.

And yet the arrivals of Grain at the two ports of Buffalo and Oswego alone, have during the last 5 years averaged 1,313,277 barrels of flour and 27,527,088 bushels of grain, while the average shipments from Canadian Ports Seaward have been but 205,821 barrels and 972,625 bushels.

The shipments from Toronto alone, from the 1st September to the 31st December 1859, were—

Flour, barrels	63,627
Wheat, bushels	805,224
Barley, "	167,364

Of which the Ports of Montreal and Quebec received but 19,715 barrels and 21,691 bushels of wheat, or about 2 per cent. only of the latter, the remainder finding its way to Oswego and other American Ports on Lake Ontario.

The entire shipments by sea from Canada last year, were only 140,235 barrels of Flour, 58,029 bushels of Wheat, and 439,328 bushels of other Grain.

There are, doubtless, the considerations, which have already been adverted to, that temporarily at least aid in bringing about this unsatisfactory result. The removal, in past years, of the Tolls from the New York Railways, and the intense competition existing among those Railways for the Western Trade, caused such a reduction in the rates of Transport, that the Canals of that State had, in order to secure a share of the traffic, to lower their dues to an extent which nearly annihilated Revenue, and apparently led to the result of making the debt incurred for the construction of the Canals, a charge on the general Treasury of the State.

The Legislature of the State of New York has now under consideration several propositions, which may have an important bearing on the future course of Trade, and will consequently claim the serious attention of the Province. Every change affecting the course of Trade in the neighbouring States, must be narrowly considered in determining our own.

It has been contended, that because the Ports of Canada are closed for five months in the year, the St. Lawrence can never, no matter how perfect the Province may render its works of internal communication, attract that extensive and varied commerce from all parts of the world, which is necessary to secure cheap and certain freight at all times to Europe; that this suspension of five months operates such a drawback as to neutralise the superior advantages we possess to bring produce to tide water, inasmuch as the higher rates of Ocean freight counterbalance the cheaper Inland transport, and moreover, that the want of cargoes

Westward must always keep the rates of ocean freight from the St. Lawrence higher than from New York and Boston, inasmuch as to the latter ports, cargoes of some kind can always be relied on, while to the St. Lawrence any greater number of vessels than the Import trade can profitably employ, must lose the voyage Westward and come in ballast; that in short the Export tonnage must keep pace with the Inward, and that no great commercial centre can grow up where the operations of trade are subject to alternate suspension and renewal, as those of Canada must always be.

These objections, whatever may have been their force at one time, are now removed. Until the construction of our Railways,—when the grain exporter was dependent on the tonnage supplied by the spring and fall fleet of the St. Lawrence,—at one time so limited and controlled by a few owners, and departing only at certain seasons of the year, when operations of every kind were suspended in winter, and all foreign markets were then inaccessible, that constancy and regularity which are essential to the growth of commerce were not attainable.

Our Ocean Steamers, sailing to and from the St. Lawrence in Summer, and Portland in Winter, now furnish a weekly line of communication with Europe, throughout the whole year, which, whether as regards expedition or economy, is unrivalled. The establishment and successful operation of those Steamers has effectually removed the objections once so forcibly urged against Canada and the St. Lawrence route, on the ground of interrupted intercourse through a protracted Winter; inasmuch as the completion of the Victoria Bridge, and the unbroken communication by rail thus opened between Portland and all parts of the Western Continent, has supplied that continuous and reliable means of communication with Europe, the previous want of which had interposed a most serious bar to the expansion of our commerce, and the productiveness of our Public Works. The facilities of communication between the sea-board and the producing regions of the West, thus presented by the Canadian route, are not by any means enjoyed to the same extent by either of the great commercial cities of Boston and New York. As regards the latter, the channels of internal water communication are closed quite as many months in the year as those of Canada, and when open, are far more restricted, devious and expensive, while Boston possesses none, but is dependent on Railway transport during the entire year.

In estimating the value of our inland communications, whether by rail or water, we cannot overlook the important use to which they may be turned in promoting a more direct intercourse between the producing regions of the West, the great granaries of America, and the Eastern States, regarded in the light of consumers. It has been stated on reliable authority, that of cereals, five barrels are consumed per every three that are exported. The supply of such a demand in itself involves a large carrying business, in which we may fairly expect to participate through the advantages which our channels of communications already possess, and which may yet be increased by further reducing the cost of transport and transhipment, by affording additional facilities for the storing of produce.

The cost of unloading, storing for one month, and reshipping, now amounts to 3 cents per bushel, while by means of proper Elevators and the modern appliances of machinery, the cost can be reduced to less than one cent. These improvements can be best undertaken by private enterprise, but the use of surplus water for the driving of machinery, and the lease at reduced rents of suitable ground, where it can be granted without detriment to the Public Works, may with advantage be afforded to individuals willing to embark the requisite capital in such undertakings. It is gratifying to be able to state, that already some large Buildings and Storehouses have been completed, and that arrangements for the immediate erection of others on a still more extensive scale are in progress. This is a most important requisite to ensure cheapness of transport; for, unless we furnish the same means for receiving and delivering produce cheaply at our own Inland Ports as American ports supply, we cannot command the trade.

The opportunity of storing produce, in cases when the immediate conveyance to market is not readily practicable, enables the producer or shipper to anticipate in a great degree the realization of his property, on the security of bills of lading and warehouse receipts.

It is satisfactory to observe that this important consideration has not been lost sight of by the Grand Trunk Railway. In a recent report from the Managing Director to the Shareholders, the following statement is made:—

"As regards the Traffic from the West, we have long been made aware of the fact, that "if the same monetary facilities were not afforded Western Shippers of Produce to the "New York and Boston Markets, or intermediate Ports, such as Buffalo or Oswego, as were "granted them at present by parallel lines, we could never expect these Shipments viâ Canada, "and therefore it is with much satisfaction that I am able to state that arrangements are "in course of completion for making advances on shipments to Toronto, Kingston, Mont- "real, Quebec, or Portland, on depositing at the place of shipment the bills of lading with "accredited Agents. The importance of this arrangement cannot be over-estimated, as we "are now at every point well qualified to compete successfully with these parallel lines for "this Western Traffic, and under similar arrangements, we shall be able to transport from "other districts of the Mississippi, their produce for manufacture in the New England "States, and also that for export to Europe."

The extension of these facilities cannot fail to attract the Western Trade to our inland route, and in a great degree to counterbalance the influence which the position of New York, as the great central point of commerce, has hitherto exerted, in drawing this traffic to itself.

In what respect any of the Chain of Great Works requires improvement, is now matter for anxious enquiry.

The first in the series of works is the Welland Canal. If its size be not sufficient to pass the vessels now plying on the Great Lakes which it connects, and which vessels would, but for its inadequate size, make use of it, it is manifest that the very object for which it was constructed, is defeated.

Particular enquiry has been instituted regarding the size and number of the vessels engaged in the Grain Trade on the Lakes, and it would appear from the returns obtained from various independent and reliable sources, that from one-third to one-fourth of these vessels cannot pass through the Welland Canal, while nearly three-fourths of the Propellers on the Upper Lakes—being the class of vessels now chiefly used in the Grain Trade—are too large to pass into Lake Ontario.

The undersigned abstains from offering an opinion how far the falling off in Trade by this Canal, is attributable to the opening of new Channels of commu nication from the Upper Lakes, and to the commercial facilities afforded to attract it elsewhere, as these considerations may be deemed fit subjects for Parliamentary enquiry. But should it be conclusively shewn, that the predominating cause, of the diminution of its trade, is the fact, that the size of its Locks is not adapted to the class of vessels now in use on the Upper Lakes, the enlargement of the Welland Canal would seem now to be as much a matter of necessity as was its construction in the first instance.

It will not be out of place to mention one fact, the bearing of which on this question is not unimportant, that reliable sources give a return of only 14,800,000 bushels of grain as shipped Eastward from the Lake Regions over Lake Ontario, in 1859, against 21,800,000 in 1858, 18,044,000 in 1857, and 23,800,000 in 1856.

Special attention is directed to the facts stated, as well under the particular head of the Welland Canal, as those contained in the correspondence in the Appendix.

The same policy that affects the enlargement of the Welland Canal, equally concerns the St. Lawrence Canals. The attention of the Chief Engineer was called to the question of the probable cost of improving the latter, and from his very satisfactory and clear Report, which will be found in the Appendix, it is gratifying to find the cost of deepening to be within a reasonable compass.

The deepening of these Canals, so as to give them at least the same depth of water as the Welland, is a work which ought not to be delayed, whatever policy may be pursued with reference to the enlargement of the whole chain.

It is a very significant fact, that the State of New York is steadily pursuing the policy of enlarging her Canals, notwithstanding that the burden imposed on the General Revenue to meet the charges upon them, is yearly increasing, and that the deficiency of the past year has to be supplied by Loans or Taxes to an amount exceeding $3,500,000.

The project of constructing a Canal to connect the St. Lawrence with Lake Champlain. has frequently been urged by parties who have for many years given attention to the subject of Transport, as requisite to complete the chain of Canals now in use, and as especially necessary to draw through the St. Lawrence, the large amount of Western Produce which is consumed in the manufacturing States of New England, a consumption which has been variously estimated at from 5,000,000 to 9,000,000 barrels a year. It has also been contended, that the Lumber Trade of Upper Canada and of the Ottawa would thus find an easier and cheaper conveyance to the markets of the United States, and that the large upward freight of heavy goods for supplying the populous Western States, of which we have now little or none, would be attracted through the St. Lawrence and Welland Canals.

The arguments affecting this important project have been so often brought under public notice, both by this Department and by the Legislature, that it is needless to advert to them again in detail, but the considerations already pointed to, which commend to us the expediency of ascertaining the effect of Canadian Railways, before entering on any large expenditure for new Works of Inland navigation, are equally applicable with reference to this. The Victoria Bridge has already remedied one great objection which formerly existed—the breaking of bulk on crossin the St. Lawrence. But as bulk must be broken somewhere on produce coming by water from the West, before its distribution among the manufacturing cities of the Eastern States can take place—the problem, whether with our new Railway facilities, that point may not be on the St. Lawrence, is one which we are now about to solve by the test of actual experience.

In the course of his investigations as to the causes to which the fact of the inadequate share of the trade passing through Canadian channels was due, the undersigned had occasion to address various official persons and public bodies, both in Canada and the United States, by all of whom statistical information of much value has been afforded.

Too much importance, however, must not be attached to statistical returns. They may show what the course of trade actually is, but we have to look deeper into the causes of its tendency thither. Legislation,—undue competition for the Traffic,—Banking assistance for the speedy realization of shipments,—the existing connexions of business, and many other inducements, have their influence, and will often outweigh the superior advantages offered by one channel over another.

The project of uniting the waters of the Western Lakes with the St. Lawrence by means of a Canal from Lake Huron, through the valley of the Ottawa, has not been overlooked. A minute and accurate survey has been completed, and the result, as respects the estimated cost of construction—the comparative advantages and difficulties of the routes—the amount of lockage and the extent of Navigation by Canal, River and Lake respectively,—will be found under the appropriate head.

The navigation, as well of the Inland waters from Lake Superior downwards, as of the River and Gulph of St. Lawrence, have become so important, both as respects safety and expedition, that special attention has been called to the necessity of providing an additional number of Lighthouses both on the Inland Lakes and on the Lower St. Lawrence, and also of distinguishing Beacons on the coast of the latter. Communications were addressed to the United States Lighthouse Board, and to the Commissioners of the Scottish Northern Lighthouses, on the subject of using Iron in the construction of the buildings—by both of whom much valuable information was most courteously furnished.

The Report of the Chief Engineer, to whom these communications were referred, will be found in its proper place. This Report contains much reliable and valuable information. The undersigned would strongly urge the immediate construction, during the present season, of Lights at Cape Whittle and the Bird Rocks, as indispensable to safe navigation.

In connection with this subject, and as a means of still further shortening the route by Canada to the West, it is recommended that measures be taken to ascertain, whether the Gulf of St. Lawrence may not be navigated with safety for a longer period than it now is, and whether a Harbor may not be found accessible during the whole year to Canadian territory. It is believed that the ice in the Gulf during a great part of the winter, offers less obstruction to the navigation, than during the late Autumn and early Spring. An experimental voyage of a steamer in winter, which might be accomplished at a moderate expense, would solve this question, which is one of some importance to the Province.

In reference to the numerous Works which have ordinarily been classed as unproductive (enumerated in Statement No. 3, Schedule A,) the gross cost of which amounts to a considerable sum, it is to be kept in mind, that many of these Works consist of buildings occupied by the various Departments of the Public Service, and which will meet their requirements for many years to come. They cannot be considered as unproductive while they are occupied in the Public Service, for they are worth, in effect, the annual rental to the Province, and operate to diminish each year, by so much, the charges on the Revenue.

The rapid growth of the Province, both in respect of population and the progress of its material and social interests, demanded that the wants for which the outlay on these heads was incurred, should be promptly met. It will be seen that they comprehend, when completed, at a small additional outlay, much that will suffice for the future necessities for many years, in regard—

1st. To the Administration of Justice.
2nd. The Hospitals, and the safe custody and proper provision for Lunatics
3rd. For Educational Requirements.
4th. For Postal Requirements.
5th. The Collection of the Revenue.
6th. The Lighthouses and Lightships.
7th. The Roads on the main lines throughout the Province.

With reference to the Public Buildings in charge of this Department, the Report of the Assistant Engineer, and Architect, detailing their condition, and the expenditure upon them, will be found in Appendix B.

It will be seen from the Schedules which accompany this Report, that the gross Revenue from the various Public Works during the past year has been $287,183.20, while the cost of management and ordinary repairs—allowing one-half the annual charge of the Head Office chargeable to that Branch of the Service—and including all items not properly chargeable to construction, has been $162,876.35.

THE FOLLOWING STATEMENTS ARE APPENDED TO THIS REPORT.

No. 1. Statement of the several Public Works under the charge of this Department, which are in use and yield revenue; showing the expenditure under the different heads during the year 1859, viz.: on Construction; the amount paid for Land Damages; and the total cost of construction *under this Department* to the 1st January, 1860. Also, the gross revenue therefrom during the year 1859, the cost of collecting the same, together with the cost of repairs and management for the same period, and the net revenue or deficit.

No. 2. Statement of the Public Works under the charge of this Department, incomplete, and as yet unproductive, but on which tolls are be levied as soon as they are available,—showing the expenditure thereon in 1859, on Construction, on Repairs and Management, and the total expenditure up to 1st January, 1860.

No. 3. Statement of the several Public Works and Buildings in course of construction under the charge of this Department, yielding no direct revenue, but in use for the public service, and authorized by legislative appropriations, shewing the amount expended thereon during the year 1859, and the total outlay upon them up to the 1st January, 1860. Also, the amount expended in repairs and maintenance for the same period.

No. 4. Statement of expenditure on certain miscellaneous services under this Department, during the year 1859.

No. 5. Statement of the expenditure incurred under this Department, for Repairs and Management of the Ordnance Canals, for the year 1859, and the revenue therefrom for the same period.

No. 6. A Detailed Statement of the expenditure incurred in Repairs and Maintenance of the Provincial Light Houses, for the year 1859, under this Department.

No. 7. Statement showing the total amount expended under the Department of Public Works during the year 1859, as detailed in the foregoing statements, numbered 1, 2, 3, 4, 5 and 6.

PROVINCIAL CANALS.

WELLAND CANAL.

The Navigation.

This Canal was opened on the first of April, and vessels were passing through it on that day. It was closed by frost on the eighth of December, making 252 days of navigation, including interruptions.

The Interruptions.

These were of a more serious nature than usual, and were caused entirely by vessels breaking Lock Gates. The navigation was twice interrupted from this cause. A vessel broke the Gates of Lock No. 7, on the 30th April, and stopped the traffic for three days. Again, on the 16th of June, the "*Quebec*," of Kingston, carried away the Gates of Lock 25, at the top of the Thorold level, and the water pouring through, produced many serious breaches in the banks along the side of the mountain. The repairs, in this instance, cost $5953.00, and the navigation was interrupted for eight days.

To guard against such serious accidents in future, it is proposed to construct a pair of guard gates in the cutting, a short distance above the 25th Lock, which is estimated to cost $20,500, and is chargeable to construction.

The storms of March and November, did considerable damage to the piers at Ports Colborne and Maitland. The injuries caused by the first storm have been repaired, but those produced by the latter have yet to be made good. It is intended to raise the Piers, in order to diminish the chance of similar accidents in future. The Repairs are estimated at $5,500, and the Raising, $7,000; the latter being chargeable to construction.

Repairs and Management.

37,584.27

The total expenditure for repairs and maintenance for the past year, is $37,524.87, and of this sum, $17,791.24 was spent in making good the damage occasioned by the breaking of gates, by storms, and by floods.

The cost of management and lighting with oil and gas for the year, is $40,988.89.

These expenses are considerably less than those of 1858, as shown by the following statement:—

	In 1858.	In 1859.
The cost of Repairs was	$61,960.40	$37,584.27
The cost of management	42,559.23	40,988.89
Repairs and Management	$104,519.63	$78,573.16

This statement is given in proof that every effort has been made to keep down expenditure, while, at the same time, the main object has been to maintain the canal in efficient working order—a portion of the expenditure for the last year, being for spare gates, to meet casualties, as well as for raising and protecting the banks to admit the passage of vessels drawing 10 feet water.

Works of Construction.

In accordance with the recognised policy of making Lake Erie the future summit level of this canal, the necessity for which is becoming every year more apparent, four steam excavators, used as dredges, have been constantly at work during the past year upon the Allanburg, or summit level, enlarging and deepening the canal to the assumed dimensions of 46 feet bottom, and 11 feet draught of water at the lowest stages of the lake. Six miles out of the 12½ miles originally authorised and required to be done, are now completed to these dimensions. The amount expended on this work during the past year, is $42,650. The sum required to be appropriated this year for carrying it on, is $60,000; in addition to which, $20,500 is required for the construction of a pair of Guard Gates at Thorold, and $7,000 for Raising the Piers at Ports Colborne and Maitland, before referred to, making in all, $87,500, chargeable to construction, and necessary for the protection and preservation of the canal, and for carrying on the enlargement of the summit level now under contract.

In the Superintendent's Report (C) which follows this, is contained, in Schedule 1, a detailed statement of the several works (including the foregoing) which he has recommended, and on which appropriations have been made in 1854, 1858, and 1859.

The total estimated cost of these is	£204,562
The amount appropriated for them is	76715
Leaving a balance still required for their completion	£127,847

The undersigned is of opinion that these works are necessary for the completion of the canal as a Provincial work, and that the balance of the estimate should be provided for when the finances will admit of it; but considers it essential, that at least the sum of £21,875 should be appropriated for the more urgent works above mentioned.

The Revenue from Tolls.

The undersigned regrets having to report a falling off of revenue, which is partly accounted for by the reduction of the tolls authorised in June, 1859. That reduction amounted to about 30 per cent., but the receipts from tolls this last year, are 40 per cent. under those of 1858, and are even less than those of 1849, ten years back.

The Receipts from tolls for the last 15 years have been :—

1845	£19086	1853	£65002
1846	26524	1854	50691
1847	30135	1855	54429
1848	28076	1856	65392
1849	34573	1857	58109
1850	37925	1858	51942
1851	50460	1859	31036
1852	58273	1860	[illegible]

There was a gradual increase up to 1856, and then a rapid decline. There is no doubt that the monetary derangements of 1857, the short crop of 1858, and the general commercial depression they produced, have tended naturally to this result; while the opening up and extending lines of railway from the Atlantic seaboard to the interior, the construction of new ones, and the keen competition existing amongst them, must divert a large share of traffic from the Canal.

The effect which these disturbing causes have produced upon the traffic of the Welland Canal, is seen in the number of vessels which passed through it in 1859, and their tonnage, as compared with the three previous years:—

The number & Tonnage of Vessels passing.	In 1856.		In 1857.		In 1858.		In 1859.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
Upwards	3359	594266	3167	582285	2856	582406	2223	418922
& Downwards.	3407	584980	3076	566149	2844	566365	2336	636917
Totals...	6766	1179246	6243	1148434	5700	1148771	4559	1055839
Average per Vessel.	176 tons.		184 tons.		201 tons.		232 tons.	

From which it will be observed, that, while the number of vessels passing through the canal has been decreasing, there has been a gradual increase in their tonnage capacity; the result being, nevertheless, a decrease in tonnage of about ten per cent., which, added to the reduction in the rates of toll, made in 1859, would appear to account, in some degree, for the falling off of the revenue from this source.

It being a matter of serious interest to ascertain, as nearly as possible, what effect the opening of the Welland Railway, constructed alongside the canal, has had upon the trade of this Canal, the Superintendent was called upon for a report on the question, and his Report is given in the Appendix (D). From this, it would appear that it has, in reality, as yet diverted but a small share of the traffic, and that its principal business has, in fact, been *created*. Banking facilities afforded to shippers by that line, have, it is stated, brought business to it, which, otherwise, would have found its way to market by American routes; and vessels have given it their cargoes, at Port Colborne, which, by their dimensions, are entirely excluded from the Canal.

The business done upon this railway, amounted to 14,713 tons, carried in 37 vessels, four of which could not pass the canal. The tolls on that tonnage would have yielded $2,896 to the canal, and the vessels $480, had they passed through;—of this, 3,890 tons were shipped to British, and 10,823 tons to American Ports.

And yet, as regards this traffic, that which may be considered as legitimately belonging to the canal, would not exceed 4,208 tons, and the tolls on it would not have amounted to more than $841.60. The remainder has been created, or added, by the railway.

But the fact which is to be regarded with the greatest interest, as affecting the course of trade, is the increase on the number and tonnage of that large class of propellers, which cannot pass through the Welland Canal on account of their size.

The Superintendent, at the request of this Department, has procured a list of all the steamers and vessels, British and American, now afloat on the Inland Lakes.

This fleet consists of

132	Steamers, of............	67,079	tons,
197	Propellers.................	67,078	"
1007	Schooners.................	205,884	"
93	Brigs	26,992	"
59	Barques	22,924	"
4	Sloops......................	244	"
	Total tonnage,.........	390,187	tons.

The largest vessel that can pass through the Welland Canal, is the "*Alexander*" of Port Dalhousie, 423 tons;—but there are very few of the large traders passing this canal that exceed 400 tons burden.

The number of vessels too large to pass the canal, and the class and tonnage of the same, are as follows:

65 Propellers, varying from 442 to 1223 tons burden, and averaging 641 tons............................	41,654	tons.
59 Steamers, from 402 to 2026 tons and averaging 537 tons..	31,724	"
15 Schooners, from 432 to 969 tons and averaging 531 tons	7,463	"
16 Barques, from 430 to 765 tons and averaging 498 tons.	7,975	"
5 Brigs, from 434 to 547 tons and averaging 559 tons.	2,797	"
Total tonnage,......................	91,613	

The tonnage of the vessels capable of passing through the Welland Canal, is 298,594, while that excluded from it by the size of the vessels is 91,613 tons, or nearly 23 per cent. of the whole. Experience has proved, and it is now pretty well understood, that the cheapest and most expeditious means of carrying freight is by the large class of propellers, from 600 to 1000 tons burden,—a class entirely too large to pass the canal, and which is increasing in number every year, and is exclusively engaged in directing the course of trade on the upper lakes, to Buffalo and Dunkirk, to supply the Erie Canal, the New York Central, and the New York and Erie Railways.

It is therefore, as before observed, a question for serious and immediate enquiry, whether the advantage which the Welland Canal possesses by its commanding geographical position between the great lakes, is not in a great measure neutralized by its want of capacity, and whether the necessity for its enlargement to meet the improvements made in freight vessels since its construction, has not become apparent. The question of enlarging all the canals, will be adverted to in a subsequent part of this Report.

Revenue from Water Rents and Leases.

A good deal of difficulty has been experienced in collecting the water rents due to the government for many years past. Stringent measures have been resorted to, in order to enforce payment, and the Superintendent has succeeded in reducing the balance outstanding, from $9,558.82, due at the end of 1858, to $7633.99 in 1859. The annual rent is $8,021.08, and the amount collected in 1859 was, $10,545.91. The gross revenue for 1859, is:

From tolls	$124,145.78
Water rents and leases	10,545.91
Fines and damages	4,176.82
Land sales	200.00
Total	$139,068.51

THE WILLIAMSBURG CANALS.

The Navigation.

The Galops, Point Iroquois and Junction Canals now form one continuous canal of 7¼ miles in length. This canal, the Rapid Plat, and Farran's Point Canals are all called the Williamsburg Canals, and are under the superintendence of Mr. Isaac Rose, who resides at Williamsburg.

These canals were opened on the 30th April, and closed by frost on the 5th December; making 219 days of navigation in 1859. There was no accident or interruption to the traffic, and no vessel was delayed during the whole season. The canals have been maintained in good order.

The water on the St. Lawrence having continued to rise last year above the high water of 1858, so much so as to overflow the towing path in many places, it was found necessary to raise these parts of the bank from 12 to 18 inches, and protect them with stone. And to check the inroads made by the current and wash of the high water, many parts of the bank have been lined with stones, forming a rip-rap wall inside and out.

The wharves referred to in the last year's Report as being in a bad state, have been put in thorough repair, and a contract has been entered into with Messrs. Kilduff and O'Neil of Kingston, for the construction during this winter of four pairs of spare gates for the Williamsburg, and three pairs for the Beauharnois Canal. The materials have been provided and the work is now in progress at Williamsburg. They are to be in readiness by the opening of the navigation in spring.

CORNWALL CANAL.

This Canal was opened on the 20th April, and closed on the 7th December, making 231 days of navigation, which continued without accident or interruption throughout the season.

The works, generally, have been maintained in good order throughout the season, with comparatively little outlay, and are now, with some slight exceptions, in a good state of repair.

The wharf at the lower entrance is so much decayed, as to require that the superstructure, for a length of 277 feet, should be rebuilt.

The upper part of the wharf at Dickinson's Landing is also much decayed, and some of the cribs on which it rests have been displaced. The expediency of maintaining this wharf is questionable, because, although of essential service at the time of its construction, it is now but seldom used.

As there are but three pairs of spare gates on hand—that is to say, an entire set adapted to either of the lift locks, and one pair for the guard lock—it will be necessary, in case of accident, to provide another pair for the guard lock and a pair for the lower gates of the other locks.

Arrangements have been made for providing stones, during the present winter, for the protection of the embankment at the upper entrance, and of the banks between locks 18 and 19.

The chamber walls of the guard lock, referred to in last year's report, as well as the "*Queen's Wharf*," at the upper entrance, have been re-built. The head gates for supplying water power on the north side of the Canal, between locks 17 and 18, at the town of Cornwall, have been constructed, and will be ready for use so soon as the coffer dams can be removed. The lessee has completed the tail race which is required to bring this power into operation.

The head gates to the mills on the south side of the Canal, on this level, were built by the lessees in a temporary manner, on the conditions, expressed in their leases, that they should maintain them in good order. These are now in such bad condition as to endanger the navigation, and the parties have therefore been called upon to re-build them.

BEAUHARNOIS CANAL.

This Canal was opened on the 19th April, and closed on the 29th November, making 225 days of navigation. The traffic was interrupted for two days by the Steamer "*Whitby*" breaking the gates of lock No. 9, on the 28th of November, but the repairs were made without delay, and the passage of vessels resumed, before the frost closed the Canal.

The works have been maintained in good order, at a moderate outlay, and the full draught of 9 feet preserved throughout the season.

As before mentioned, three pairs of spare gates are in course of construction for this Canal, to be in readiness by the opening of the navigation.

Some trifling repairs are required to the Locks, Lock Houses, Bridges and Ferry Scows. Two of the latter will have to be re-built. The Banks, Slope Walls and Ditches demand a small expenditure to maintain them in good order, as well as the Dams at the head of the Canal, which must be raised and protected against the action of the water.

The cost of these repairs for this year is estimated at $5,532.50.

The Repairs last year amounted to $2,917.28.

The amount collected for Fines and Damages to the works during the year, is $604.98, the particulars of which are given in the Appendix (J).

The Superintendent has suggested certain new works as being necessary. *First*, a Store House for the safe keeping of the Canal Property. *Secondly*, the re-building of the wharf at

Gross Point, and, *Thirdly*, the construction of a break-water to connect it with the shore These works are estimated to cost $4,714.

Water Rents and Leases.

The Superintendent has furnished a statement (Appendix K.) of Water Rents and Leases of wharves and other property on the line of this Canal, from which it will be observed, that with one exception all the lessees are in arrears. The annual rental amounts to $1,257, and there is now due to the Government $3,715.50. Measures will be taken to enforce the payment of these arrears with as little delay as possible.

Claims.

The Provincial Arbitrators, appointed under the Act 22 Vic., cap. 28, sec. 41 to 45, have investigated and made up their awards upon nearly all the outstanding claims put forward for damages arising out of the construction of the Dams at the head of the Beauharnois Canal.

The number of these claims which they have adjudicated, is 461. The amount laimed on them, was $132,002.09—and the amount awarded is $11,810.90.

The undersigned recommends that the amount of these awards be embraced in the Estimates of this year.

LACHINE CANAL.

This Canal was opened on the 21st April, and closed on the 30th November, making 224 days of navigation, which was maintained without interruption throughout the season except that at the 2nd lock, a new pair of gates had to be substituted for those in use which proved to be too weak; but the delay was confined to this end of the Canal, all above being free, and lasted only 24 hours.

The Canal has been maintained in an efficient state, and the river having continued high throughout the season, there has been no difficulty in keeping up the supply of water to the mills, but such is the increase of machinery, and the use of water, by the mills established on the line of the Canal, that it is very much to be feared, when the river falls again to its ordinary level, there will not be a sufficient supply of water to keep them all going, without admitting a current in the Canal that would become a serious impediment to the navigation. The enlargement of the Rock cut, so often alluded to in former Reports, as necessary, both for the benefit of the navigation and the employment of the machinery established on the line, is, therefore, a work which ought to be proceeded with at an early date.

A store house on this Canal is very much required for the protection of the Public property, and it is also necessary that houses should be built for the lock and bridge tenders, who have to be on duty at all hours. The cost of these houses is estimated at $21,000.

A further sum of $6,000 is necessary to complete the boom at the Lachine Basin, for which the guide or supporting piers were constructed in 1857.

The Superintendent strongly urges the necessity of constructing new waste weirs at Locks 3 and 4, in lieu of the temporary expedient now in use, of making the walls of the old Locks to serve for regulating the water; but in view of the possibility of enlarging the present locks within a short period, and the changes which such enlargement may require in the position of the works, their construction will be postponed as long as it may be prudent to do so.

The repairs of a general nature, required during the year, are estimated at $7,711.00. They consist of the pointing of lock walls, repairs of lock-gates, fixed and swing bridges, waste weirs, wharves and booms, Canal banks and slope walls.

A statement of the fines and damages collected on this Canal during the past year, by order of the Superintendent, amounting to $229.80, is given in the Appendix (J.)

Water Rents and Leases.

Full particulars are also given (Appendix K) in reference to the leases of water power, and other privileges on this Canal, yielding an annual revenue of $11,548.00. For some years past certain of the Leasees fell in arrears in their payments, various reasons for non-payment being assigned, but in accordance with regulations issued regarding the water rents on all the Canals, payments will now be strictly enforced as they become due.

The amount collected in 1856, was $17,009.

CHAMBLY CANAL.

The navigation on this Canal commenced on the 15th April, and continued without interruption until the 3rd December, 233 days.

The Superintendent has furnished a statement of the repairs made to Locks and Bridges during the past year, by the Lock and Bridge tenders, under the direction of the Local Superintendent, and also of what is intended to be done, before the opening of the navigation in spring, by the same means. The estimated cost of the repairs for this year is $2,590.00.

The Canal has been maintained in good working order, and it is satisfactory to observe a steady increase of the traffic upon it. The Revenue has increased from $11,263.22 in 1858 to $16,019.32 in 1859. There is a marked improvement in the trade, and the number of steamers plying regularly between the Ottawa and Whitehall is steadily increasing. On the completion of the Champlain Canal, connecting Lake Champlain with the Hudson River, a new impulse will be given to the trade, and it is therefore important to preserve this Canal in an efficient state.

A by-wash is required at Wood's Creek, for the protection of the banks, as well as to prevent deposit in the Canal, the removal of which every year is an important item of expenditure. The estimated cost is $4,000.

The amount collected for damage done to the Canal by vessels this year, is $91.07. The rents collected, $20. Rents due, $980.50.—(*See Appendices J. and K.*)

SAINT OURS LOCK AND DAM.

This lock was in use from the 5th of April to the 3rd of December, and the navigation continued without interruption throughout the season of 243 days.

The works have been maintained in good order this year at a moderate outlay: but some repairs are now required both at the lock and dam. The old gates are not to be depended upon any longer; and it is the intention to take them out, and put in new ones in the spring.

The dam has settled at both ends, and some of the apron cribs have sunk considerably. They must be raised to the proper level and protected with stones. The repairs on lock and dam for this year are estimated at $3,075.

ST. ANNE'S LOCK AND DAM.

This Lock was in use from the 18th April to the 28th November, and the navigation was maintained without interruption 225 days. The lock gates have been in constant use for 19 years, ever since the first construction of this lock, and are still in good working order.

The dam above the lock is in a very decayed state, but can be maintained a few years longer. The one at the foot of the lock, however, must be re-built above water this year, and a new bridge is also required over the mill race. The repairs for this year are estimated at $1,250.

A lock house and collector's office are very much needed. Estimated cost $1,800.

It is satisfactory to observe a steady increase in traffic at this point. The revenue for 1859 is $5,654.17, shewing an increase of $746.76 over the previous year.

CARILLON AND GRENVILLE CANALS.

(ORDNANCE CANALS.)

These Canals were opened on the 29th April, and the navigation continued without interruption until the 28th November, 214 days.

In consequence of their being so remote from Ottawa, and inconvenient of access to the Superintendent of the Rideau Canal stationed in that city, the charge of these canals was for that reason transferred from him to Mr. Sippell, the Superintendent of the Lachine Canal, residing at Montreal, and a local foreman, Mr. Thompson, an experienced mechanic, was placed under him.

Mr. Sippell's report on these works is to the same effect as those previously received by this Department, shewing them to be indeed in a very bad condition. The location of these Canals, and the scale of navigation, are such as to render it inexpedient to incur any expenditure in their maintenance which can possibly be avoided; and yet such is their dilapidated condition, that in order to keep the Canal open at all, it has become indispensable to incur an outlay under the authority of Council of $5,025, in re-building the chamber wall of the first lock at Carillon. The wall has been taken down, and will be re-built in March and April next.

Materials have likewise been purchased for making other repairs under Mr. Thompson's direction, and a good deal has already been accomplished by him towards getting these Canals in better condition. The channel at the upper entrance of the Grenville Canal, which had become very shallow from many years' neglect, has been deepened by the operation of a dredge extemporized for the occasion, to a depth of 4½ feet at low water.

It is proposed to continue this dredging in spring, and to remove the sand bars in other parts of the Canal, which, with the other necessary repairs to the Canal banks, lock gates, &c., are estimated for this year to cost $2,546.00.

These Canals have heretofore been operated under the Ordnance Regulations, which are now abolished, and the Rules and Regulations in force on the Provincial Canals have been applied to them. The rates of toll on these, and the Rideau Canal also, call for revision, and a new scale will be established for the spring.

RIDEAU CANAL.

This Canal was opened on the 16th April and closed on the 23rd November, at Ottawa, and on the 30th November at Kingston, making 222 days of navigation.

An interruption occured by the breaking of the dam at Smith's Falls, on the 8th May, which lasted seven days. The dam has been re-built on a better principle, and may now be considered permanent.

The Superintendent, in his annual report, has given a statement of the present condition of the works on this Canal, accompanied by an estimate of such repairs as he considers indispensable for maintaining it in working condition, amounting to $6,053.48, and a further estimate of $1,668.40, for other repairs which he reports are very much required. In all amounting to $7,721.82.

It became necessary, during the last season, to make special provision in some instances for guarding against the failure of certain works, and a consequent stopping of the navigation. Contracts have been entered into, under the authority of Council, for re-building the breast wall and mitre-sill of the lock at Black Rapids, and a portion of the lower wing wall of Brewer's lower lock, and for renewing the lock gates. These works will be done early in spring.

This line of artificial navigation, 127 miles in length, with its 47 locks, its dams, waste-weirs and flood-gates, was handed over to this Department in such bad order, that the cost of repairs and maintenance have been, and must, for some years, until restored to better condition, continue to be, of more than an ordinary amount. It is a system of navigation which deals directly with every flood of the country through which it passes, and in order that it may be placed in safety beyond the reach of these disturbing causes, its mechanical structures and appliances for regulating the water should be constructed on the most approved principles, and the superintendence should be in every way efficient.

The question of reducing the establishment on this line, must therefore be approached with caution, and has, during the past year, engaged the anxious consideration of this Department; but in view of the character of this navigation, and the necessity for constant vigilance in its supervision, by experienced hands, in order to avert accidents, little reduction has yet been effected. The question, however, is now being gone into in all its details.

The revenue for the last year was only $6,866.72, being a slight increase over 1858, and was derived chiefly from local traffic. The products of the forest furnish the largest share of tonnage. The Iron Mines are just beginning to create traffic, and the movement of Agricultural products is slightly increasing.

It is believed that the revenue might be increased by a judicious revision of the present rates of toll, which are very low and quite disproportioned to the facilities afforded; and a further addition might be made to it by utilizing the water power, now unproductive, on many parts of the Canal.

With this view, a survey has been directed, and it is expected a plan will shortly be matured, by which the surplus water of the Canal, with land appropriate for its use, may be disposed of by public competition. In this way, business will be created, the settlement of the country promoted, and the traffic increased.

If, on full consideration, it is found practicable to carry the proposed reductions in the working into effect with safety; and should the increase of tolls produce the anticipated result, the undersigned entertains the hope that, with the additional revenue from water rents, the deficiency will in great measure be made good.

OTTAWA WORKS.

The several works on the Ottawa, and its ~~territories,~~ tributaries, constructed to facilitate the descent of lumber, and placed in charge of Mr. Horace Merrill, are reported by him (Appendix E,) to be generally in good order, and their operation during the past year, satisfactory.

The repairs necessary for their maintenance, to make good the wear and tear of the running season, were commenced at the period of low water, last fall, when they could be effected to the best advantage, and are now well advanced towards completion. Some repairs in the Madawaska and Gatineau Rivers, which had to be postponed until winter, are in progress, and will be completed in due time.

The dams, and crib channel, at the Carillon rapids, commenced in 1857, have been completed this year, and the heaviest timber can now be passed at low water, and with fewer hands than in former years.

Two other improvements of importance, referred to in the report of last year, have been undertaken.

The *first* is the raising of the dam, at the High Falls, on the Madawaska, by which the dangerous portion of the current at the Ragged Chute, has been drowned out and destroyed, and a large space for boomage created.

The *second*, the renewal of the works on the South Branch of the Pettewawa, constructed by private enterprise, some sixteen years ago. These are now under contract, the work in progress, and will be completed and ready for business in the spring.

For these improvements, it is understood, a toll is to be collected, sufficent for their maintenance and renewal, as well as to meet the cost of management, and interest on outlay.

Another improvement has been prayed for, on the same terms, by the lumbermen, which consists in the establishment of a retaining boom at the Cheneaux Rapids, on the

Ottawa River. The lumbermen of the Upper Ottawa are deeply interested in this improvement, as, on that reach of the River, which includes the Calumet, Mountain, and Portage du Fort Rapids, a great quantity of timber is annually scattered, carried over the Chenaux Rapids into the Chats Lake, and ultimately lost. The estimated cost of the boom is $4,500. The parties interested, proposed to construct it during this winter, under the direction of the Superintendent, at their own cost, trusting to be reimbursed by an appropriation, and upon that condition, and the payment of a toll, they have been authorized to proceed, and the works are now in progress.

The Union Suspension Bridge, at Ottawa, under the charge of Mr. Merrill, is an important thoroughfare, and has yielded this year an income of $1,866. The floor beams, which are now 18 years old, are found to be much decayed, and no longer safe; and it is therefore recommended to replace them by wrought iron girders, with a view of making the roadway permanent, and obviating in future the necessity of interrupting the traffic to make repairs. The flooring and hand rail may be renewed in wood, as they can be readily replaced at any time, without inconvenience to the traffic. These repairs are estimated at $3,500, and that amount should be embraced in the Estimates for this year.

A further sum of $4,000 is required for the reconstruction of the Hull Slide, which is very much decayed, and although with care, and patching, it may be used for the next running season, it cannot be depended upon for another year.

CHATS CANAL.

No further expenditure has taken place on this Canal, during the past year; and for the reasons stated in the previous annual report of the Department, the works remain suspended.

PORTAGE DU FORT ROAD.

The contract being unfinished at the setting in of winter, it became necessary to suspend operation on this Road until the spring. Some chopping, the trimming off of slopes, and the laying on of about sixty toises of stone, still remain to complete the contract, which can be done in the course of a few weeks in the spring, and thus confer upon the trade of the Upper Ottawa, the full benefit of this improvement.

ST. MAURICE WORKS.

The several works constructed on this river by the Government, for facilitating the descent of lumber, have operated well during the past year, notwithstanding the water raised to the unprecedented height of 23 feet. They have been maintained in good working order on the moderate outlay of $543.21 for repairs, and as far as can be seen, those for the present year will not exceed that sum.

A further saving in the cost of management has been affected this year, by uniting the duties of the Paymaster to that of the Superintendent; but there appears little prospect at present of reducing the cost to an equality with the Revenue directly obtainable from Slide dues.

The cost of maintenance for 1859 was..................	$7,234.54
And the Revenue for the same year was..................	2,121.84

The indirect revenue from Crown dues, on the saw logs and lumber got out, and on the ground rent for timber limits, is not of course taken into account. During the past year only *five* parties carried on lumbering operations on this river, but it appears that this year there are no less than *fourteen* establishments at work upon it; some increase in the Revenue may therefore be expected, and ten times the quantity of lumber might be put through these works without making it necessary to increase the present establishment.

As the extent and character of the government works on the St. Maurice may not be generally known, the report of the Superintendent for last year (Appendix F) giving a brief account of their cost, extent, position, management, and revenue, is appended hereto.

THE SAGUENAY WORKS.

For lumbering purposes.

The works described in the previous Reports of this Department, as being undertaken to facilitate the lumbering operations on the Saguenay, are fast drawing to completion, and it is confidently expected that they will be ready for use for the next *"driving season"* in spring. More than a mile of the long slide has been completed, and the foundation of the remaining portion has been laid. The workmanship is reported good, and the materials carefully selected. The dams already built, operate well, and have resisted the floods of last year in a very satisfactory manner.

A scale of tolls is now under consideration, and will be fixed before the opening of the works in spring.

RIVER SCUGOG, AND INLAND WATERS OF THE NEWCASTLE DISTRICT.

The new works, commenced under recent appropriations, having been suspended at the close of 1858, were not resumed in 1859, and, consequently, remain in much the same state as described in the last Annual Report of this Department. The expenditure charged to construction in 1859, amounting to $7,640.14, is for the balance due to the contractor for work done during the previous year, and for a pumping engine which had been purchased for the use of the works.

The attention of this Department having been called to the state of the improvements on Scugog and Bobcaygeon, undertaken by the Government for facilitating communication between the back townships; and enquiries having been made in reference to them, it was considered desirable, before incurring further outlay in their prosecution, that the Chief Engineer of this Department should make a careful examination of these works, and report fully on their condition,—furnishing an estimate for their completion, and suggesting such regulations as might be necessary to secure their future preservation and efficiency.

That officer has accordingly made his inspection, and furnished his Report upon these works, which will be found in Appendix G. It contains nearly all the information that could be desired on this subject, but, in order to arrive at a proper estimate of the cost of completing them, it was found necessary to have surveys and sections made of the Scugog

River, which, being as yet incomplete, the action of this Department in reference to them is, for the present, deferred.

LAKE AND RIVER LIGHTS, BEACONS, &c.

Above Lachine.

The three iron vessels, for Light House service on Lake St. Louis, referred to in the last report as being then under contract, were completed and brought into use in the latter part of last year. They have been found well adapted to the purpose, and the position for which they were made; but the upper one, from its exposed position, and the greater elevation necessary to be given to the light, labours considerably in a heavy sea. This inconvenience will however, to some extent, be remedied before placing the vessel at its station next spring.

The Light Houses, and other works connected with this branch of the service under this Department, have been maintained in an efficient state throughout the season, for the most part with ordinary repairs. In some few instances, it was found indispensably necessary to build protection works against the effects of storms, which, owing to the prevalence of very high water for some time past, have been unusually severe. Several works of a similar nature will have to be constructed during the present year.

The service of delivering the supplies at the different stations, was satisfactorily performed by contract after Public Tenders were received, and at much less expense than theretofore.

The works for maintenance referred to as of an unusual character, are as follows:

Constructing a new Pier at Gross Point on Lake St. Francis. Repairing and securing the foundation of the Light House at McKie's Point. The purchase of land and erection of a dwelling house for the keeper, and protecting the Light House and keeper's dwelling on Cherry Island. Forming a new foundation for, and making alterations to the Light House on Jack Straw shoal, River St. Lawrence. Repairs and protection of buildings at Nine Mile point. Securing foundation and making repairs to range light at Presqu'ile, on Lake Ontario.

Several alterations had to be made in the keeper's dwelling at Mohawk Island, and means of access established between it and the Light House. At Long Point, Lake Erie, a new dwelling was erected for the keeper, and the Light tower repaired and both protected from the effects of high water.

The works necessary to be undertaken this year are the following:

Rebuilding the beacon in Lake St. Francis, constructing a house for the light keeper at Cole's shoal; another at Lindoe Island, and another at Burnt Island, forming a new foundation for, and securing the light on Spectacle shoal, River St. Lawrence.

Securing the foundation of the buildings at Point Peter, and Gull Island, Lake Ontario.

Additional walling for protection of buildings at Mohawk Island. Rebuilding Light House at Port Maitland, and building a house for the keeper. Further protective works to the Light House on Pelee Island, and building a house on Point Pelee, for the keeper of the light established on the reef.

These works are estimated to cost $11,750.

These, together with the works and repairs effected during the past season, will place the Light Houses and works connected with them, in a more secure and serviceable condition than they have been for many years past.

The Light Houses recently erected on the Coast and Islands of Lake Huron, referred to in the former reports of this Department, were so far completed as to admit of the lights being exhibited in the early part of the past season, and, since that time, they have been maintained in a thoroughly effective condition.

The Chief Engineer of this Department, who examined the whole of them in July last, with a view of ascertaining their condition, and effecting a settlement with the contractors who did the work, reports that the Buildings are constructed of a durable class of materials, and the workmanship executed in a creditable manner, and that the lanterns and lighting apparatus, procured from the Patentee, in Paris, have fully answered the expectations as to their efficiency, and the brilliancy of the Lights; but that he found it necessary for the future safety of the Works, to make several important changes in the mode of securing and fitting them up, which, although necessarily occupying considerable time, in no case interfered with the regular exhibition of the light.

The Lights being now fully completed, and in use, are visible in moderately clear weather at a distance of from 15 to 20 miles, and some of them are even said to have been seen at a distance of 25 miles. They have proved of essential service to the navigation on the Lake, and may be considered sufficient for the Georgian Bay, and East Coast of Lake Huron, for many years to come; but for the navigation of the north channel, it will probably soon become desirable that the other four Lights for that channel, which were placed under contract in 1855, should be proceeded with.

For the benefit of Navigators and Owners of Vessels on this Lake, the following information, in reference to the six new Lights recently established, has been prepared.

Name of Light.	Height of Light over Water Surface.	Height from Base to Centre of Light.	Characteristics of Lights.		REMARKS.
(A) Point Clarke......	87 feet	80 feet	Revolving White.	2nd Order.	(A) This Light marks out a dangerous reef which runs out a considerable distance beyond it into the Lake, directly in the line of coasting vessels; it is readily distinguished from Goderich on the South, or Chantry Island on the North, both of these being fixed lights.
(B) Chantry Island...	86 do	80 do	Fixed White......	2nd Order.	(B) This Light enables vessels to stand for the Island, under lee of which, on the East side, there is considerable shelter; but a reef runs out to the S.W., fully ¾ of a mile from the southerly point of the Island.
(C) Isle of Coves......	90 do	80 do	Flashing White..	2nd Order.	(C) Situated in the strait between the Georgian Bay and Lake Huron; light easily distinguished, vessels pass to the North of it at a distance of ¼ of a mile or more; at about 3 miles to the North of it is a sunken rock on which there is only 4 feet of water.
(D) Griffith Island...	130 do	80 do	Fixed White......	3rd Order.	(D) This Light, in addition to its other advantages, is of service to vessels making Colpoy's Bay, which affords good shelter and holding ground, from 2 to 10 fathoms of water.
(E) Nottawasaga Island............	86 do	80 do	Revolving White.	2nd Order.	(E) This Light is situated to the Westward of the entrance to Collingwood Harbour.
(F) Christian Island	61 do	55 do	Fixed White......	4th Order.	(F) This Light is on the S.E. spit of the Island, and on the west side of the southern entrance to the Harbor. This Harbor is well sheltered, and has a depth of from 5 to 12 fathoms. The South entrance has a depth of 16 feet, and the two Northern ones are from 6 to 20 fathoms deep.

HARBOUR IMPROVEMENTS, LAKE HURON.

The Landing Piers, and other works of a similar nature, constructed at different places on the coast of Lake Huron and the Georgian Bay, were examined during last summer by the Engineer of this Department, who reports, that at—

PENETANGORE OR KINCARDINE,

The works have been carried to the full extent the amount granted by the Government will admit of.

They consist of two parallel lines of piers placed 100 feet apart. The Northern one is 540 feet long, and the Southern 290 feet. The cribs are formed, in part, of piles, driven in two lines front and rear, and the remainder of crib work. The North pier is covered with plank, but underneath them the spaces between the piles are empty. Nothing has yet been done towards dredging out the channel between the piers, or towards forming the proposed basin inside.

This place, although exposed to the full sweep and action of the S.W., West, and N.W. winds, affords a very good landing place for such vessels as have occasion to call in moderately calm weather.

When these works were undertaken, it was clearly understood that the Local Municipality to whose credit the aid was granted, and assistance given from time to time during the progress of the work, would raise such additional funds as were necessery to proceed with the improvements to such extent as would render them practically serviceable to the locality; but this Department has not yet been informed that any such provision has been made by the municipality to carry out this understanding.

INVERHURON.

This place is situated on the boundary line between the townships of Bruce and Kincardine, where a large tract of land has been laid out into a village plot.

The landing pier built here some years since, is about 450 feet long, and is formed of detached cribs connected together by longitudinal stringers planked over at top. The work stands well, except that a few of the top planks have been forced off by the action of the sea between the cribs.

This pier will be handed over to the care of the Local Municipality, which in future will be expected to provide for its maintenance.

PORT ELGIN.

The works connected with this pier have been completed in a substantial and creditable manner, under the management of an Incorporated Company, aided by a portion of the general appropriation towards Harbours and Piers on Lake Huron. The condition of the grant having been complied with, the sum of $4,000 allotted to these works has been paid.

This Pier has already proved to be of great advantage to the locality.

SOUTHAMPTON.

The Pier, or breakwater, as it may be called, at the mouth of the Saugeen River, has bee completed to the extent authorized by the appropriation. It has been carried out 300 feet from the shore, and about 100 feet upon the low part of the beach, in order to prevent the shingle passing over, in case of storms.

The object aimed at by its construction, was to give the current a direction that would have a tendency to prevent the formation of a bar which annually accumulated at the mouth of the River. Its effect, for the distance before stated, has been so far satisfactory; but the water still continues as shallow as heretofore for fully 600 feet beyond the outer end of the Pier, and doubtless will continue to do so, until the work is extended.

It is intended to hand this pier over to the care of the Local Municipality, as in other similar cases.

CHANTRY ISLAND.

The Break-water constructed on the N. E. end of this Island, has rendered the shelter for vessels under its lee, much more secure; and the Light erected there affords facilities for making it with greater certainty.

The slight damage done to the upper part of the work by the ice during last winter, has been repaired.

In view of the fact that the great extent of coast on Lake Huron, presents little or no facilities for the construction of good harbours, it is important that this work should be improved so as to render the harbour a safer asylum for vessels in stress of weather; by extending and raising the Pier as much as may be necessary to secure that object.

OWEN SOUND.

The works at this place consist principally of straightening and deepening the channel of the River Sydenham, from its mouth upwards, to about the centre of the town plot, and of forming a basin inside sufficiently large to admit of turning an ordinary sized steamer in it, and in which a certain number of vessels can safely lie during winter.

Towards these objects, the Government granted the sum of $9,000, and the Municipality raised by Debentures the further sum of $12,000.

The works have been proceeded with under a contract entered into with the Corporation, subject to the approval of this Department. They are now nearly completed, and have so far been found of great service to the town and the adjoining country.

PORT STANLEY HARBOUR.

Under the authority of Council, this work has been given over to the London and Port Stanley Railway Company, upon the following conditions:

That the Company should at once proceed with the works necessary for the protection of the Harbour, and use all diligence to complete its construction. That they should receive the tolls of 1858, and a balance of $2,899.89, authorized to be expended on certain works of security. That they should pay the late contractor the sum of $5,418, for the value of his plant, to be delivered by him, and to assume the payment of any materials he had delivered, and for which he had not been paid. That they should be authorized to collect the tolls, as fixed by the Government—on condition of expending at least the whole of this amount in improving the harbour. That the money to be paid over to the Company, should only be advanced on satisfactory certificates as to the progress of the work.

The Crown reserving the right to assume the Harbour again, at any future time, without being subjected to any claim for compensation, except paying the Company the value of the improvements made by them, over and above the tolls collected, or which ought to have been collected by them during their possession. Returns to be made to the Provincial Secretary, on the 1st January of each year, and the Company to give security for the due fulfilment of the conditions of the transfer. In accordance with these conditions, the Company have proceeded with the repairs of the harbour, and have extended the western pier, inwards, towards the land, and the expenditure of $7,956.79, in 1859, shewn in Statement No. 1 of

Appendix A, is for payments made to the Company for work performed, and expenses incurred by the fulfilment of their obligations under the transfer.

BURLINGTON BAY CANAL.

The sum of $3,464.59 has been expended during the past year, in completing the repairs of the north pier, and in the construction of a breakwater, 226 feet in length, extending from the south pier, along the beach in front of the light-house. The evil consequences which have hitherto resulted from the sea making its way across the beach, and carrying sand through the Ferry Recess, and depositing it in the channel, are thereby entirely removed.

The superstructure, however, of the south pier is in a very decayed state, in consequence of which the pier is so much weakened, as to give rise to serious apprehensions for its safety during storms. That portion of it, extending outwards from the Ferry Recess, is much exposed to the easterly gales, during which the sea breaks heavily over it, tearing up the planking, and throwing the stones into the channel. Under the authority of Council, arrangements have been made for getting all indispensable repairs completed during this winter, in order that the works may be secured before the opening of the navigation in Spring.

The Superintendent in charge (Mr. Woodruff) reports the estimated cost of the repairs necessary to put this Canal in good order, to be $28,782.40. The balance of appropriation applicable to these repairs is $13,335.31, leaving the sum of $15,447.09 to be provided for their completion.

OTTAWA SURVEY.

In accordance with the recommendation contained in last Report, it was found necessary in order to ensure uniformity, to authorize one of the gentlemen in charge of the survey of one of the sections, into which this work has been divided, to exercise a general supervision over the whole operations, and to place the result of the Sectional Surveys in his hands, for the purpose of obtaining a general and comprehensive Report. Mr. T. C. Clarke was selected for the duty, and his final Report is just now obtained, and is in possession of this Department, together with complete plans, profiles, and detailed estimates.

An abstract of the Report will be found in the Appendix; but the following is in substance the result.

The distance from the mouth of the French River to Montreal by the route surveyed, is 430.76 miles, of which 351.81 miles is already a good navigation, requiring no improvement. Of the other 78.95 miles, 29.32 will require to be Canal navigation; and the remaining way be improved, so as to connect the whole into a first class navigation for vessels drawing 12 feet of water.

The cost, exclusive of deepening the Lachine Canal and Lake St. Louis, and apart from land damages and expenses, is estimated at $12,026,351.

The route would effect a saving of distance between Chicago and Montreal, over the existing one by the Welland Canal, of 343 miles; but with an increased lockage of 15 locks, and an additional rise and fall of 169.60 feet. The Lake navigation by the existing route, is 1,145 miles in extent, and the Inland or River 134; when by the Ottawa, the former is 575 miles, and the latter 401.

ENLARGEMENT OF THE ST. LAWRENCE CANALS.

The Estimate furnished by the Chief Engineer of this Department, amounting to $1,028,000,—the details of which are given in his Report (Appendix (H)—is made in compliance with the Resolution of the House of Assembly of the 16th March, 1859; and provides for the *deepening only* of the St. Lawrence Canals for a draught of 10½ feet water.

In giving consideration, however, to the question of increasing the capacity of these canals, it appears to be of equal importance to their success, that the locks, besides being *deepened*, should be *enlarged*, or lengthened, so as to pass the larger and more profitable class of vessels; especially the Propellers of heavy burden. In a list, which has been furnished to this Department, of 36 Propellers plying on the Upper Lakes,—twenty of that number, being from 185 to 240 feet in length, are too long to pass these locks; so that, by merely deepening the locks, without *adding to their length*, only a partial improvement would be effected.

It appears desirable, therefore, before embarking in any expenditure, to increase the efficiency of the Provincial Canals; that the dimensions of the Locks, and the draught of water proper for this navigation, should be fully considered, and decided on; and that being done, that surveys and estimates should be made under this Department, for the enlargement of the Welland and St. Lawrence Canals to that scale.

The information in possession of this Department, does not enable its officers to furnish such estimates, without special surveys being made for that purpose.

In 1854, Mr. Shanly made a survey for a Branch Canal, to connect the Welland Canal with the mouth of the Niagara River; and his Report thereon was published in the Report of this Department for 1856. The line from Thorold to Niagara is 12¼ miles long, and his Estimate for a Canal, commensurate with the scale of navigation adopted for the Sault Ste. Marie Canal (which is 100 feet wide at bottom, with Locks of 350 feet in length, 75 feet in width, and 12 feet depth of water), amounts to £989,625.

This survey, however, was made with special reference to a side cut to Niagara,—not for the enlargement of the Welland Canal itself; and before any conclusion can be arrived at, as to the most feasible line for the improvement, it would be necessary that a survey be made with direct reference to that object.

PROVINCIAL TUG STEAMERS

ON THE

LOWER ST. LAWRENCE.

This service has been efficiently and satisfactorily performed. The number of vessels towed last year was 114, and the percentage, under the Order in Council, on the reduction from the Tariff, was $8,757.69.

The reasons which led to the establishment of this line, and the various questions affecting its operations, were fully adverted to in last year's Report, and it would be superfluous to repeat them here.

In the month of August last, the contractor proposed to the Government to abandon all his contracts for the Tug, Trinity and Light-House service, and for the mail service to the Lower Provinces, and to transfer to the Government the five steamers, "Queen Victoria," "Napoleon III.," "Lady Head," "Advance" and "Admiral," on condition that the Province released him from the balance of £18,000 of his debt due in respect of the advances which had been made to him in former years on account of the same service, and that it relieved him from a mortgage existing on the vessels in favor of the Bank of Upper Canada, for £23,386, and paid him £15,000 to enable him to meet other liabilities—the contractor to perform the service for the then current year, and the proposed arrangement to take effect at the close thereof.

By the terms of the agreement, dated August 1855, the contractor was intitled to the bonus of £11,300 until the end of 1864. The services performed by his vessels, either under existing contract with the Trinity House, or after tender by public competition, or by private agreement, were :—

1st. Mail Service to the Lower Provinces		£2,500 a year.
2nd. Trinity House Service—embracing the laying down and taking up of Buoys in the Lower St. Lawrence, carrying supplies to the River Light-Houses and voyages with Apprentice Pilots	2,000	
3rd. Trips to the new Light-Houses at Belle Isle, Forteau Bay, Anticosti and Cape Rosier, for the transport of provisions, and also conveying materials and workmen for repairs—one trip by public tender at £2,000, and the 2nd at £1,000	3,000	
4th. The Tug Service £11,300 a year—to which add the 30 per cent. allowed by order in Council on the 50 per cent. reduction in the Tariff Rates—the remaining 20 per cent. being borne by contractor—average £1,500 a year	12,800	
		£20,300 a year.
In addition to the foregoing services performed by Mr. Baby, the following performed by other parties had also to be defrayed ;—		
5th. Protection of Fisheries	2,500	

6th. Grosse Isle Quarantine Service - - - - - - - - - - - - - - - - - - -	1,000
In all	£23,800

But it is believed that an additional sum of £1,000 would be required to be paid for the service to the Lower Light-Houses, and a further sum of £1,000 for the Trinity House services, making in all the sum of £25,800.

The considerations which presented themselves for the decision of the Government were these:—At the time the Contract was entered into, the system of Towing had not been introduced. There were no means of relieving wrecks, or aiding vessels in distress, the navigation of the St. Lawrence was naturally considered dangerous, and the rates of Insurance were correspondingly high. The establishment of the Line in question undoubtedly gave a new character to the navigation, largely reduced the rates of Insurance, and the length of voyages, especially on the more valuable class of vessels using the tow. But while these public benefits were accomplished, and the practice of using tug boats was introduced, the consequence naturally was to bring into existence other steam tugs, of a far less expensive character, and, in a certain degree, more suitable for plying on the upper part of the river. These had been built by private enterprise, to the number, it is believed, of 16, and entering, as they did, into competition with the far more expensive and powerful Provincial boats, naturally diminished their earnings. The object which had induced the Government, in the first instance, to foster the undertaking, was in a great measure accomplished. The Provincial boats, being of great power and size, were more suited for towing in the Lower part of the Gulph, but the use of Ocean Steamers to a great exten- superseded the use of tugs in that navigation, while the completion of the smaller and more profitable private tugs, in the upper part of the River, diminished the pecuniary return of the Provincial undertaking. It was therefore considered desirable, by a fair compromise with the contractor, to relieve the Province from the heavy future annual charge of the subsidy.

If the various services above enumerated, necessary for the public interests, could, by the assumption and direct employment by the Government of the contractor's vessels, be so economically performed as to entail a less annual charge on the revenue than by the existing arrangements with him, the offer was manifestly an advantageous one.

As regarded the vessels themselves, (the three most valuable being of iron, and nearly new,) the cost of the whole to the contractor, was upwards of - - - - - - - - - - - -		£96,000
The Contractor offered to transfer them on payment of the three following sums:—		
1st. His debt to the Bank of Upper Canada, - - - - - - -	£23,386	
2nd. On being discharged from the balance of his [illegible] debt to the Province - - - - - - - - - - - - - - - - -	18,000	
3rd. An actual payment to himself, to wind up his business, of - -	15,000	
		£56386
Cost of vessels to Contractor, in excess of what Government paid, being - - - - - - - - - - - - - - - - -		£39614

Viewing the question in another aspect, without reference to the assumption of the Steamers, the saving to the Government on the Tug Contract was as follows :—

1st. Annual subsidy of £11,300 for 5 years, amounted to	£56,500	
2nd. 30 per cent, on the towage at past average, which, though only allowed by Order in Council, was nevertheless a necessary consequence of the reduction.	12,250	
		£68,750
Deduct however the balance of Contractor's debt, repayable by certain instalments.		18,000
Left total payable under these existing arrangements to Contractor during the five years.		£50,750
In lieu of which the Contractor agreed to receive—		
1st. Debt to Bank.	£23,386	
2nd. Payment to himself	15,000	
		38,386
Shewing a saving to Government on the Contract in five years of		£12,364

But considering that the Government was left in possession of Steamers whose cost was £96,000, at the price (including its own debt) of £56,386, the question how far a profitabel use could be made of these Steamers, in the Public interests of the Province, was necessarily an important element in deciding on the Contractor's offer.

The services which were indispensable, were :—

1st. The Trinity House requirements, comprising the laying down and taking up of buoys, carrying supplies to and materials for repairs of the Light-Houses other than the four new remote Lights, and visiting those Light-Houses, and carrying the apprentice pilots.

This service cost, and could not, it is believed, be efficiently performed, under £3000 a year, for though the existing Contract which expired last year, limited the sum to £2,000, the new wants which the increase of Trade had created, would probably have required an additional payment of £1,000,—making for the efficient performance of this service, £3,000 a year.

2nd. The like service to the four remote lights at Belleisle, Anticosti, Forteau and Cap Rosier. For this service, which the undersigned endeavoured to accomplish by means of one trip of a steamer, tenders were asked by public advertisement and but two parties offered—M. Baby being one at £2,000 for the trip, and the second being the owner of a vessel pronounced by the Trinity House unfit for the service. When these remote lights were visited with the supplies for the year, it was found that very serious repairs were required and that a second trip was indispensable. On the strong remonstrance of the Trinity House, arrangements were accordingly made with the contractor to perform a second trip with the necessary materials and mechanics, at the reduced rate of £1,000. Experience shews that it would be unwise to neglect visiting these distant posts twice, at least, each year, and if the Government had to depend on its execution by public tender, it does not seem practicable to get parties capable of performing it under £3,000 or £4,000.

3rd. The adequate protection of the fishery interests against foreign encroachment, and the preservation of regularity among the fishermen themselves, now costs, by means of a schooner, the capacity of which to perform the service effectively is insufficient—£2,500.

4th. The postal service and communications with the Bay of Chaleur and Pictou and the Gulph settlements, which, though annually voted, have yet been shewn to be of so much importance, that their maintenance might fairly be considered for some years to come a matter of settled policy, £2,500.

Making the total cost of performing these indispensable services, (exclusive of towing or assisting wrecks, or quarantine requirements)—£12,000.

In addition to these items, it has to be borne in mind, that the tug service could not be entirely dispensed with, and it was necessary, in the interest of the trade of the Province, that steamers of sufficient power and strength, should be available to relieve wrecks or ships in distress—services which alone, under the existing contract, cost the Province £12,800 a year.

It was equally apparent, that in view of the erection of the additional light-houses in the Gulph, the services of powerful steamers were necessary, and these, if obtained by contract, must add a heavy item to the other charges already specified.

The whole of these indispensable services, as well of the Trinity House as for the Fisheries and the Postal services, it was estimated, could be performed, and the necessary provision also made to meet the wants of vessels actually requiring the use of large steamers, whether for towing or for relief—and to perform the additional works required in erecting the new light-houses, at a gross annual cost for the entire season of running the vessels, of £14,481; or, deducting the sum of £4,500, which it was estimated might be realised from towing, and the charter of one of the steamers intended to ply to the Gulph Districts at an actual yearly outlay to the Government of £10,000.

It was therefore determined to carry the proposal into effect; and by an order in Council, dated the 23rd August, 1859, the arrangement was approved of, subject to the sanction of Parliament. Should that sanction be given, it is conceived that the vessels can best be operated, with as little disturbance as possible in the mode of management adopted by the Contractor, whether as regards wharfage, stores, provisions, staff, or crew. The arrangements made by him for the coming year have been provisionally assumed by the Department. A small supply of coal, requisite for the spring use, has been provided, and the vessels intended to be operated are being placed in thorough repair. For all which provision is made in the gross sum of £14,500, specified as the cost of the yearly operations

TUG SERVICE.

Upper St. Lawrence.

The tug service between Lachine and Kingston has been performed by the contractors, Messrs. Calvin and Breck, during the past year, in a very satisfactory manner, and judging from the absence of all complaints, the conditions of the contract appear to have been faithfully carried out.

Owing to the extreme depression of trade, from the causes before referred to in this Report, the number of vessels towed last year is less than in 1858 by about twenty-five per cent. The number of vessels towed on the several divisions, and the moneys collected for the same, are given in the following

STATEMENT.

DIVISIONS.	Towages in 1858.		Towages in 1859.	
	No.	Amount.	No.	Amount.
		cts.		cts.
Lachine to Beauharnois Canal	1,253	8679 52	1,262	7807 34
Beauharnois Canal to Cornwall	841	12214 32	615	8671 08
Dickinson's Landing to Kingston	917	23321 27	573	15943 15
Totals	3,011	44215 11	2,450	32421 57

MONTREAL OCEAN STEAMSHIP COMPANY.

In the Address to Her Majesty, passed during the last Session of the Legislature, the injustice inflicted on Canada by Great Britain, in subsidising two Rival lines of Ocean Steamers to Foreign Ports, was fully pointed out. These subsidies operate as a direct bounty in favor of the Cities of New York and Boston, and therefore aid in drawing thither that Trade which Canada sought to attract, by the construction of those great works of Internal Communication which she was encouraged by the Imperial Government on distinct grounds of national policy to undertake and prosecute. The proceedings adopted to follow up the object which that Address had in view, will, it is earnestly hoped, result not only in a recognition by the Imperial Government of the injustice to Canada of the exsiting arrangements, but in obtaining substantial aid towards the support of the Canadian Line; for it cannot be supposed, when the real facts are appreciated, that Great Britain will continue invidiously to foster the Trade and interests of a foreign country, to the direct detriment of those of her own most important Colony.

The importance, and indeed the necessity, of a weekly line of steamers to Europe from Canada, as a means of ensuring freight at all times for the Western Produce, and without which it cannot be attracted through Canadian Channels, has been adverted to in a preceding part of this Report. The evidence given before the Committee of the House of Commons on the subject, and the communications with the Colonial Secretary, are already in the possession of the Government.

While it is gratifying to mention the unprecedented success which attended the voyages of these Steamers to the St. Lawrence during the past year, the wreck of two of the ships on their westward winter voyages is matter of deep regret. These disasters, however, though discouraging at the moment, cannot permanently affect the ultimate success of the undertaking ,for the advantages of the route have been so completely demonstrated, that the accidents can have no other result, than in prompting increased efforts to remove, by future success, the existence of any unfavourable impressions which may have arisen with reference either to the route or the enterprise itself.

Full details of the operations of the Steamers will be found in Appendix N.

PUBLIC BUILDINGS, OTTAWA.

Every effort has been made for an early commencement and vigorous prosecution of Public Buildings in Ottawa destined for the accommodation of the Legislature, the several Public Departments, and the Governor General, when the seat of Government shall be transferred to that city, with the view of having them completed and in readiness at the earliest possible day.

In the erection of buildings intended for a permanent seat of Government, it was felt to be of the utmost importance to enlist ~~obtain~~ the best talent of the country in designing for them suitable and appropriate plans, and the offer of first and second premiums of £250 and £100 for the best and second best designs for the Parliamentary and Departmental Buildings respectively and of £100 and £50 for the Governor General's residence, was responded to in a spirited manner by the architectural profession. Upon less than two months notice, no less than thirty-three separate designs, in different styles of architecture, and illustrated by numerous plans, sections, elevations, perspective drawings and specifications, were submitted to this Department by eighteen architects, of whom one resided in the State of New York, and the rest in Canada.

For the Parliamentary Buildings there were sixteen designs by fourteen competitors, ten of which were either of the Classic or Italian styles, and six of the Norman and Gothic. For the Departmental Buildings four were Classic and three Gothic, making ten designs by six competitors. For the Governor General's Residence there were ten designs by ten competitors.

Many of these designs evinced great taste, and some of them were conceived and executed in the best style of art, highly creditable to the architectural profession of this Province.

The first premium for the Parliamentary Buildings was awarded to Messrs. Fuller and Jones, of Toronto—the second to Messrs. Stent and Laver, of Ottawa—both designs being in the Civil Gothic style.

The first premium for the Departmental Buildings was awarded to Messrs. Stentand Laver, and the second to Messrs. Fuller and Jones. Both styles in this case being Civil Gothic.

The first premium for the Governor General's Residence was awarded to Messrs. Cumberland and Storm, and the second to Messrs. Fuller and Jones. The design of the former being Venetian, and that of the latter Classic.

The architects to whom first prizes were awarded were thereupon immediately instructed to prepare detailed plans, working drawings and specifications and all other necessary information for submitting the work to public competition; and the plans for the Parliamentary and Departmental Buildings having been completed in the shortest possible time, twenty-one tenders were received on the 15th November for the former and twenty-nine for the latter; but in consequence of Mr. Cumberland's absence in England, the plans for the Governor General's Residence could not be got ready until the 18th inst., and the receiving of Tenders will consequently be delayed until the 10th March next.

The two lowest tenders for the Parliamentary and Departmental Buildings were those of Mr. Thomas McGreevy, and Mr. Charles Peters, Builders, of Quebec. Their tenders for both taken in the aggregate amounted to precisely the same sum, and after full enquiry as to the choice which should be made between these parties, the contract was awarded to Mr. McGreevy. At his suggestion the work was afterwards divided, and the contract for the Parliamentary Buildings was made with him, and that for the Departmental with Messrs. Jones, Haycock & Co., contractors, of Port Hope—the latter having arranged with him to take the work at his prices.

The contract price for the Parliamentary Buildings is three hundred and forty-eight thousand, five hundred dollars, and the time for completion is fixed for the first July, 1862. For the Departmental Buildings the contract price is two hundred and seventy-eight thousand eight hundred and ten dollars, and the time for completion first January 1862. In each case the cost of fire-proofing the Buildings respectively is included.

The very important question of Heating and Ventilating has received the fullest consideration, and with the view of obtaining the best information on this subject from practical plumbers, machinists, or other parties, actually engaged in applying their different systems to meet the wants of the community, the works connected therewith were submitted to tender on certain conditions; amongst which it was required that each competitor should describe the system on which his tender was based, and give with it specifications and detailed drawings, shewing its application, to the respective Buildings, and guarantee its perfect efficiency for ten years after it went into operation. On these conditions eight tenders were received, one being for the application of the hot air system, one for hot water in pipes, and the rest for steam either in pipes or radiators. The prices for all the Buildings together varied from $22,800 to $94,920. The lowest being for the application of hot air was not entertained, because it was not considered practicable to warm buildings of this magnitude in that way.

The tender which offered the most advantages and came nearest to the requirements, was that of Mr. Charles Garth of Montreal for $61,285, while it was at the same time the lowest of any, which it would be at all safe to entertain. It is based on the system of heating by steam in pipes laid in vaulted air chambers in the Basement. The fresh ~~first~~ air from without being introduced through these vaulted chambers, is warmed by the pipes on its passage into the apartments, while the vitiated air is drawn off by a perfect system of Ventilation. It is believed that this plan will be found efficient, agreeable and healthy, and will give perfect satisfaction. Mr. Garth's tender has accordingly been accepted conditionally on his making certain modifications required by this Department to ensure the more perfect Heating and Ventilating of all the apartments, and with this view the detailed plans and specifications are now in course of preparation.

THE NORTHERN RAILWAY.

Under the provisions of the Act 22 Vic. ch. 89, sec. 1, measures were taken by this Department to put the Northern Railway in safe working order. To this end the Deputy Commissioner, in conjunction with the Engineer of the Company, having carefully examined the condition of the works, agreed upon an estimate of such as appeared to them most requisite, to the extent of $60,000, the amount authorised to be expended, and after submitting them to public competition, contracts for their completion were entered into between the Contractors and the Company, with the sanction of this Department, and the works were proceeded with, and completed as speedily as possible. These repairs were conducted entirely by the Company's Officers, but under the direction and approval of the Chief Engineer of this Department, who also made monthly examinations of its progress, and certified the estimates for payment.

This expenditure of $60,000 has been of the greatest advantage to this line of Railway; and has accomplished the object of the act in rendering it safe. It will enable the company to maintain this line in a serviceable state for traffic at moderate speed, until the new capital authorised to be raised by the Legislature, is applied in the restoration of all the works during this year.

The money has been mostly expended in works of a permanent character, six miles of track have been relaid with new rails—six miles with old rails repaired, and twelve with new ties, besides a large number inserted at the rail joints throughout the line.

The track has been ballasted four miles to a depth of 16 inches, 1¾ to 18 inches, and a good deal on different parts of the line. The roadway, in the ballasted portions, has likewise been widened to 20 feet where embankments occur, and to 24 feet in cuttings. The new rails are laid on new ties, with new-wrought iron chairs, and the surface finished in a superior style.

Eight of the temporary wooden bridges, measuring in all 657 feet in length, have been replaced by stone culverts and solid embankments.

The money thus expended in the restoration of the line, has since been repaid to the Government.

MATAPEDIA ROAD.

The southern division of this highway across the Gaspé peninsula, from the River St. Lawrence to the Bay of Chaleurs, is under the charge of Mr. John Lefebvre, and, on the 24th of December last, the superintendent reports, that "owing to the complicated nature "of the work, several of the contractors having abandoned their jobs," he was "necessarily "obliged to complete them by day work." Eleven miles of road have been finished, with the exception of two bridges in the course of construction.

The amount paid upon old and new contracts, day labor, and supervision, was -	$3,117 70
Amount yet unpaid upon new contracts - - - - - - - - - -	808 30
Total expended during the year - - - - - - - - - - - -	**$3,926 00**

A balance on hand, is available to meet the above amount of unsettled claims.

The northern division, placed under the care of Mr. J. B. Lamontagne, embraces a distance of 42 miles, of which twelve miles have been put under contract this year, and from the last report of the officer in charge, the expenditure for the year has been $2,362.37.

GASPÉ AND ST. LAWRENCE ROAD.

Upon that portion of the above line of road skirting the north shore of Gaspé Basin, from Watering Brook to Seal Rock, (a distance of six miles and a halr)two deviations were recommended by the superintending officer, in order to avoid heavy bridging over ravines upon the coast line of road. The first improvement, constituting a detour round the valleys of the Three Runs, and Halibut Brook, towards little Cap aux Os; the second, affording a short cut north of Grand Cap aux Os. These sections, placed under contract during the summer, have been completed and received in part; but owing to the from having set in early, some indispensable labor in rounding and finishing the road-bed, remains to be performed.

The cost of this portion of the road amounts to $3214 80, or at the rate of $493-58 per mile. A bridge over Watering Brook has also been constructed, at an outlay of $600, and the Superintendent reports that the total present and prospective expenditure of the road along the margin of Gaspé Basin to Grand Grève, will be - - - $4,272

Leaving this balance of the appropriation unexpended, - - - - 5,728

Amount of two appropriations, - - - - - - - - - - - $10,000

Of the available balance above shewn, it is contemplated to expend a part in completing a road already opened between Watering Brook and Griffin Cove, on the River St. Lawrence, a distance of about 7½ miles, upon which, up to the present time, a number of substantial bridges have been built, and other improvements commenced. The Superintendent reports favorably of this communication, and estimates the cost to complete the road, at $3,605, which will still leave an unexpended sum of $2,123, applicable to the further repairs and improvements of the Gaspé and St. Lawrence Road.

GRAND BAIE AND MALBAIE ROAD.

The only outlay upon this Road has been $32-80, taken from an unexpended balance of $186 22, for the hire of laborers in clearing the track of fallen trees and timber, which obstructed the travel upon the road.

THE TEMISCOUATA,

Or Communication Road between Canada and New Brunswick.

This road is a very important one, as a principal means of communication between Canada and New Brunswick, and the only land mail route between the two provinces, affording great facilities to parties lumbering on the River St. John and its tributaries, and enabling them to get in their supplies from the settlements bordering on the St. Lawrence. A very considerable extent of good soil, moreover, is found in the western vicinity of the new road, capable of settlement.

The earth works, which had been suspended since the autumn of 1858, were recommenced on the 13th of October last. Up to that time, the superintendent, Mr. Rosa, had been occupied in re-surveying and making partial alterations, calculated to improve the line; and the preparing of timber, hauling of stone, &c., for new bridges and abutments, were pushed on with energy.

The works accomplished this autumn are as follows:—

Three miles of connecting portion between old and new roads.

General repairs of about thirty miles in extent of former roads.

Five small wooden bridges, newly built, and timber got out for new bridges, over Green River, the Cabaneau River, the two Syriac Brook Rivers, the River au Bouleaux, and Savanna Brook.

About three-quarters of a mile of new road and ditching made, and a quantity of stone and earth excavation delivered for the above bridges—making the amount expended for the year $3,386.09.

The officer in charge is actively engaged, at the present time, in drawing upon the frozen swamps cedar timbers, and fascines for causewaying the softer portions of the route where passage with horses would be impracticable in summer.

REMOVAL FROM TORONTO TO QUEBEC.

The most careful arrangements were made to carry this part of the Public service into effect, in as efficient and economical a manner as possible. The Assistant Engineer was dispatched to Quebec, to examine and report on the various Buildings, suitable for the Public Departments; and after considerable delay, the requisite accommodation was obtained at a less cost, as will be seen from the following comparative statement, than has been payable in Toronto.

Comparative Statement of Rent and Taxes and Insurances on Buildings occupied by the Public Departments in Quebec and Toronto.

TORONTO.	Annual Rents.	Taxes & Insurance.	QUEBEC.	Annual Rents.	Taxes.
	$ cts.	$ cts.		$ cts.	$ cts.
Executive Council, Old Hospital.	1044 75	236 00	Executive Council, Hotel St. George,	1800 00	60 00
Minister of Finance Dept.	....	....	Minister of Finance Dept.	900 00	80 50
Receiver General's Dept.	1200 00	....	Receiver General's Dept. Bureau of Agriculture.	1200 00	40 00
Public Works Dept.	600 00	88 50			
Crown Lands Dept.*	1504 00	240 00	Public Works	600 00	21 00
Bureau of Agriculture, Adj't. General's Office	1600 00	252 00	Crown Lands	....	15 00
			Post Office Department	....	13 00
Post Office Dept. in Crown Lands.	....	....			
	$5948 75 816 50	816 50		$4500 00 229 50	229 50
	6765 25			$4729 50	

*Building constructed at expense exceeding $24,431.78, and cost of replacing yet to be covered, $13,862.88.

The outlay on requisite fitting up, has also been kept within the narrowest compass possible, as will be seen from the *General Expenditure* of the Department.

After full consideration and an examination of the question in all its bearings, it was deemed advisable to effect the conveyance of all the Departmental and Legislative effects, furniture, records, and a certain portion of the Library, by one Contract, for which Tenders were accordingly invited. Fourteen tenders were received, varying from $19,948 to $60,000. The Tender of the party offering lowest, who could give security, was accepted—that of Messrs. Sherwood, Ginty & Co., for $19,948.

Subsequently, those parties transferred their Contract to Messrs. Jacques and Hay, who were accepted by the Department at the same price; and it is but justice to them to say, the service was most efficiently and satisfactorily performed. The gross amount paid to them by the Department, for the conveyance of the whole of the Departmental and Legislative effects, and those of the Governor General, and for replacing the same at Quebec, was $21,086.81; the excess of $1,038.81 over the contract price being for extra carriage, and services which arose during the Contract.

In regard to the removal of the various officers of the Government, with their families and effects, the question of accomplishing this also by contract was fully considered, but so many well founded objections presented themselves to the contract system, that after a prolonged examination, by the Deputy Heads of the several Departments, of the relative advantages and disadvantages involved, it was determined to make a money allowance, based partly on the position and salary, and partly on the number of the family, and to permit the officers and employes each to remove by what conveyance he saw fit. It is believed that the system adopted, has both given general satisfaction, and been in every way productive of a saving to the Province.

The interruption in the public business of the Department, in consequence of the removal was only during the space of one week.

All of which is respectfully submitted.

JOHN ROSE,
Commissioner.

PUBLIC WORKS, 9th February 1860.

APPENDIX TO THE REPORT

OF THE

COMMISSIONER OF PUBLIC WORKS,

FOR THE YEAR 1859.

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Appendix A.—Statements No. 1, to 7 in reference to expenditure.

" B.—Report of Mr. Rubidge, Assistant Engineer and Architect on the Public Buildings, in charge of the Department.

" C.—Report of the Superintendent of the Welland Canal for 1859, with statements 1 to 7.

" D.—Special Report of the Superintendent of the Welland Canal, on the traffic of 1859.

" E.—Report of the Superintendent of Ottawa Works, for 1859.

" F.—Report of the Superintendent of the St. Maurice Works for 1859.

" G.—Report of the Chief Engineer on the Improvements of the River Scugog, and the "Inland Navigation of the Newcastle District."

" H.—Report of the Chief Engineer on the deepening of the St. Lawrence Canals.

" I.—Instructions to, and Report of the Chief Engineer on proposed New Light Houses for the River and Gulf of St. Lawrence.

" J.—Statement of the Fines and Damages imposed and collected in 1859, on the Beauharnois, Lachine, and Chambly Canals.

" K.—Statement of Hydraulic Rents and Leases on the St. Lawrence and Chambly Canals

" L.—Extract from the Report of the Engineer of the Ottawa Survey.

" M.—Circular making certain enquiries touching the course of Trade, and extracts of replies thereto from Her Majesty's Consul at Buffalo, the President of the Board of Trade of Oswego, and the Superintendent of the Welland Canal.

" N.—Table giving details of the operations of the Ocean Steamers.

APPENDIX A.

No. 1.

STATEMENT of the several Public Works under the charge of this Department which are in use and yield revenue, shewing the expenditure under the different heads during the year 1859, viz: on Construction, Amount paid for Land damages, and the total Cost of Construction *under this Department*, to the 1st January, 1860,—also the Gross Revenue therefrom during the year 1859, the Cost of collecting the same, together with the Cost of Repairs and Management for the same period, and the Net Revenue or Deficit.

NAME OF WORK.	Expenditure on construction during the year 1859.	Amount paid for damages in 1859.	*Total expenditure on construction to 1st Jan., 1860.	Gross revenue during 1859.	Cost of collecting Revenue during 1859.	Cost of repairs and management for 1859.	Net Revenue for the year 1859.	Deficit for the year 1859.
Canals.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Welland	47,847 50	1,581 75	4,507,927 78	139442 55	8569 98	78,573 16	52299 41	
St. Lawrence Canals, viz:								
Lachine	2,851 78	.....	1,988,677 29	69608 40	10419 19	20,673 30	728 86	
Beauharnois	333 13	.....	1,572,487 11	1663 48	795 90	12,748 96		
Cornwall	5,269 64	.....	463,036 60	182 01	628 31	14,298 46		
Williamsburg	.....	20 00	1,089,739 93	84 17	1125 00	9,942 13		
Junction	19,504 78	.....	230,736 11					
General Expenditure	363 16	.....	74,093 38			177 95		
Chambly	.....	200 00	67,653 25	16112 54	1636 25	13,938 86	537 43	
St. Ours	.....	.....	122,927 65	388 01	529 77	1,555 95	.....	1697 71
St. Anne's	80 27	.....	111,056 02	5659 17	631 31	935 22	4092 64	
Burlington Bay Canal	3,464 59	.....	270,635 69	14358 95	800 00	322 63	13236 32	
Slides and Dams, &c.								
Ottawa	25,749 05	.....	594,924 93	33158 08	1000 00	13,539 58	18618 50	
St. Maurice	201 92	.....	241,718 45	2528 97	.....	7,213 19	.....	4684 22
Trent	.....	.....	.....	40 00	.....	400 00	.....	360 00
Harbours.								
Port Stanley	7,956 79	.....	223,128 49	3956 87	.....	27 37	3929 50	
	113,622 61	1,801 75	11,558,742 68	287183 20	26135 71	174,346 76	93442 66	6741 93

* Based on accounts of 1855.

Total net revenue on all Canals, deducting deficit as above..........$83842 22

No. 2.

STATEMENT of the Public Works under the charge of this Department, incomplete, and as yet unproductive, but on which Tolls are to be levied as soon as they are available,—shewing the Expenditure thereon in 1859, on Construction, on Repairs and Management, and the Total Expenditure up to the 1st January, 1860.

NAME OF WORK.		Expenditure on construction in 1859.	Repairs and management during 1859.	Total Expenditure to 1st January, 1860
		$ cts.	$ cts.	$ cts.
Chats Canal.				
Expenditure as shown in last year's Report.				
To Contractor	$323,802 53			
Surveys and Engineering expenses up to 1st January, 1859	49,389 45			
Total expenditure up to 1st January, 1859	$373,191 98			373,191 98
Scugog Inland Navigation.				
Exclusive of $352,823 80 expended on Back-waters of Newcastle District and Trent works, up to 1st January, 1856		7,640 14	643 50	101,484 36
Saguenay		10,145 38		32,776 08
		17,785 52	643 50	507,452 42

No. 3.

STATEMENT of the several Public Works and Buildings in course of construction under the charge of this Department, yielding no direct Revenue, but in use for the Public Service, and authorized by Legislative appropriations, shewing the amount expended thereon during the year 1859, and the total outlay upon them up to the 1st January, 1860; also the amount expended in repairs and maintenance for the same period.

WORKS.	Total outlay up to 1st January, 1859.	Expenditure during the year 1859.	Total outlay up to 1st January, 1860.
	$ cts.	$ cts.	$ cts.
Parliament Buildings, repairs, Toronto Government House do.	274272 30	542 75	274815 05
Custom House do.	5104 18		5104 18
Post Office do.	27986 07		27986 07
Observatory do.	13884 65		13884 65
Female Lunatic Asylum do.	9966 83		9966 83
Osgoode Hall do.	159 30		159 30
Gun Sheds do.	3679 23		3679 23
Barracks, repairs do.	597 37	60 32	657 69
Railway Inspector's Office do.	525 62		525 62
Custom House Hamilton	17662 62	15219 49	32882 11
Post Office do.	52625 42		52625 42
Gun Sheds do.	5510 82	55 85	5566 67
Post Office London	19568 43	14181 87	33750 30
Custom House Kingston	38210 00	3595 52	41805 52
Post Office do.	36196 52	3077 43	39273 95
Lunatic Asylum and Gaol do.	4293 92		4293 92
Public Buildings Ottawa.		10052 97	10052 97
Court House Montreal.	292380 40	831 75	293212 15
Custom House, repairs, do.	907 63		907 63
Gaol repairs, do.	1263 60	80 00	1343 60
Post Office repairs, do.	269 99		269 99
Normal School do.	5422 82	935 75	6358 57
Marine Hospital Quebec.	91706 10	1638 80	93344 90
Custom House do.	167170 39	50618 78	217789 17
Gun Sheds do.	4424 12	121 30	4545 42
Post Office and Parliamentary Buildings do.		31096 78	31096 78
Spencer Wood do.		4299 35	4299 35
Normal School do.	7071 04	110 02	7181 06
Gaol repairs, do.	100 00		100 00
Observatory repairs, do.	266 87	51 90	318 77
Gaols and Court Houses, C. E.	35290 86	72 80	35363 66
Gaols and Court Houses, C. E., 20 Vic., ch. 44	771 44	51053 91	51825 35
Aylmer Court House repairs.	505 00	18 65	523 65
Kamouraska Gaol	6 90	5067 14	5074 04
Sherbrooke Court House & Gaol repairs.	5 47	3550 18	3555 65
Three Rivers Court House repairs.	10 57	1101 81	1112 38
St. Hyacinthe Court House repairs.	4 95	490 00	494 95
Dépôt at Anticosti		31 07	31 07
Rents, Repairs and Maintenance	226067 74	32576 36	258644 10
Light Houses.			
Light Houses below Quebec	389971 42	6532 13	396503 55
Light House Apparatus below Quebec	54602 16		54602 16
Light Houses (new) below Quebec	15601 59		15601 59
Point Pelée Light House	53045 33	59 57	53104 90
Snake Island Light House	10411 87	18 17	10430 04
Bay of Quinte Light House	108 16		108 16
Light Houses, Lake Huron	127103 88	15210 67	142314 55
Light House Apparatus, Lake Huron	74949 16		74949 16
Floating Lights above Lachine	115 53	25613 52	25729 05
Gaspé Bay and Harbour Buoys		200 00	200 00

No. 3.—STATEMENT of Public Works, &c.—*Continued.*

WORKS.	Total outlay up to 1st January, 1859.	Expenditure during the year 1859.	Total outlay up to 1st January 1860.
Roads.	$ cts.	$ cts.	$ cts.
Canada and New Brunswick	106734 44	3386 09	110120 53
Metapedia, South	14000 00	2500 00	16500 00
Metapedia, North	......	2475 66	2475 66
Malbaie and Grande Baie	6000 00	......	6000 00
St. Denis and Cap Chats	10000 00	6000 00	16000 00
Marmora	4000 00	......	4000 00
Garrison Road, Toronto	1600 50	......	1600 50
Gaspé Road	......	3289 25	3289 25
Côteau and Province Line Road	......	893 24	893 24
Harbours and Piers.			
Port Bruce	6267 47	......	6267 47
Lake Huron	80413 45	11000 27	91413 72
Pier at St. Anicet	......	77 71	77 71
L'Orignal	2000 00	......	2000 00
Landing Piers	768971 02	......	768971 02
Repairs of Piers	6422 53	369 77	6792 30
Dredging Narrows and New Bridge, Lake Simcoe	10138 30	......	10138 30
Dredging at Picton and Presqu'Isle	1013 03	113 25	1126 28
Dredging at St. Clair's Flats	19984 45	......	19984 45
Richelieu Rapids Improvements, (Ste. Anne de la Pérade)	13661 06	52 90	13713 96
North River and Petite Nation Bridge Improvements	3600 00	......	3600 00
River Thames Navigation Improvements	3814 42	......	3814 42
Dredging Vessels, Steam Pumps, &c	......	2029 50	2029 50
Total	......	310354 25	

No. 4.

STATEMENT of Expenditure on certain Miscellaneous Services under this Department, during the year 1859.

	$ cts.
Emigration and Quarantine Service	3,162 51
Tug Boats below Quebec	26,083 79
Tug Boats, upper St. Lawrence	24,054 71
Steamboat service, Lower Provinces	5,000 00
Removal to Toronto, in 1855	308 71
Trinity House, Quebec	12,486 05
Ottawa Survey and Surveys generally	29,593 12
Arbitrations	14,859 74
Removal of "Free Trader" wrecked at Port Stanley	40 01
Removal to Quebec, 1859	23,873 12
Administrator's removal in 1857	79 10
Northern Railway	* 60,000 00
	199,540 86
Less:	
Included in No. 1 Statement, and also, under the head of Arbitrations	1,801 75
	197,739 11

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* This amount is included in and repaid by subscription of New Stock deposited with London Agents.

No. 5.

STATEMENT of the Expenditure incurred under this Department for the Repairs and Management of the Ordnance Canals for the year 1859, and the Gross Revenue therefrom for the same period.

NAME.	Ordinary repairs and management.	Repairs Ordnance property.	Total Expenditure.	Gross Revenue.	Cost of Collection.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Rideau Canal	26898 79		26898 79	10743 90	*
Carillon and Grenville Canal	5373 94		5373 94		
Breach at Long Island		599 77	599 77		
From Sundries					
	32272 73	599 77	32872 50	10743 90	

* The Tolls are collected by tne Lockmasters, who account monthly to the Superintendent.

No. 6.

A DETAILED STATEMENT of the Expenditure incurred in Repairs and Maintenance of Provincial Light Houses, for the year 1859, under this Department.

No.	Name of Light.	Name of Keeper.		Amount of Salary paid.	Supplies and Repairs.	Total.
				$ cts.	$ cts.	$ cts.
1	Lachine Pier	John Norton		385 00	361 80	746 80
2	Light Ship No. 1					
3	Do. No. 2	Pierre Landre		250 00	347 81	597 81
4	Do. No. 3	Benjamin Picard		250 00	361 04	611 04
5	Beauharnois	Joseph Meloche		225 00	180 16	405 16
6	Grosse Point	Peter Shannon		435 00	*1237 94	1672 94
7	Mackie's Point	A. McDonald		175 00	*1265 14	1440 14
8	Cherry Island	E. S. Johnson		435 00	945 60	1505 60
8½	Do. Light Ship	G. H. Johnson		125 00		
9	Lancaster Pier	Thomas Hill		335 00	414 85	749 85
10	Cole's Shoal	Richard Elliott	1000 Islands.	140 00	201 17	34 17
11	Grenadier Island	Joseph Austin		120 00	208 08	320 08
12	Lindoe Island	J. W. Allan		140 00	200 95	340 95
13	Gananoque Narrows	Jas. McDonald		260 00	1051 25	1311 25
14	Jack Straw Shoals					
15	Spectacle Shoal	Daniel Bryant		560 00	276 43	836 43
16	Red Horse Rock					
17	Burnt Island	Joseph Mervin		120 00	190 00	310 00
18	Snake Island	Lewis Wartman		108 75	759 10	1190 14
		Geo. Lamb and L. Herchmer		322 29		
19	Nine Mile Point	John Dunlop		435 00	*1913 48	2348 48
20	False Ducks	Joseph Swetman		510 00	717 00	1227 00
21	Point Peter	W. A. Palin		435 00	590 45	1025 45
22	Scotch Bonnet	Samuel Wilson		326 25	400 40	726 65
23	Presqu'Isle	W. Swetman, Sr.		325 00	*1677 65	2252 65
23½	Do. Range Light	W. Swetman, Jr		250 00		
24	Gull Island	George Roddick		435 00	450 75	885 75
25	Gibraltar Point	George Durnam		435 00	490 40	925 40
26	Burlington Bay	John Davidson		400 00	120 63	520 63
27	Oakville	....		....	99 50	99 50
28	Port Dalhousie	Jon. Woodall		325 00	500 20	825 20
29	Port Colborne	Jas. Fortier		400 00	600 67	1000 67
30	Mohawk Island	John Burgess		435 00	700 34	1135 34
31	Port Maitland	Peter Baikie		435 00	300 32	735 32
32	Port Dover	Wm. Fifield		....	145 20	145 20
33	Long Point	H. H. Clarke		435 00	*2948 00	3383 00
34	Port Burwell	Alex. Sutherland		320 00	200 13	520 13
35	Port Stanley	Richard Ead		157 25	93 72	250 97
36	Point Pelée	W. J. Taylor		435 00	954 55	1714 55
		Jas. Edwards, Asst		325 00		
37	Pelée Island	Jas. Cummins		435 00	*5924 75	6359 75
38	Bois Blanc	Jas. Hackett		435 00	410 20	845 20
39	River Thames	Thomas Cartier		435 00	307 21	742 21
40	Goderich	H. Fidler		325 00	300 98	625 98
41	Point Clark	John Young		477 55	752 88	1355 70
		Thos. Kilty, Asst		125 27		
42	Chantrey Island	D. M. Lambert		435 00	880 40	1523 10
		Jos. Holmes, Asst		207 70		
43	Isle of Coves	Geo. Collins,		435 00	1050 07	1609 11
		E. Collins, Asst		58 10		
		Wm. Milne		65 94		
44	Griffith Island	John Frame		270 41	556 06	1017 67
		Vesey C. Hill		191 20		
45	Nottawasaga Island	D. McBeath		435 00	1018 95	1678 95
		A. McBeath, Asst		75 00		
		John Merrill, Asst		150 00		

No. 6.—A DETAILED STATEMENT of the Expenditure incurred in Repairs and Maintenance of Provincial Light Houses, for the year 1859, under this Department, —*Continued.*

No.	Name of Light.	Name of Keeper.	Amount of Salary paid.	Supplies and Repairs.	Total.
46			$ cts.	$ cts.	$ cts
	Christian Island	Wm. Hoare John H. Johns	435 00 209 00	496 51	1140 51
	Management, Salary of Superintendent and his travelling expenses, freight, and charter of Steamer delivering Supplies, Advertising, &c.			3916 03	3916 02
	Placing Buoys, Lake St. Francis			107 93	107 92
	Do. Lake St. Louis			61 00	61 00
	Do. Bois Blanc			86 63	86 63
	Keeping up Temporary Lights, Lake Huron, in 1855, 1856 and 1857			1477 41	1477 41
	Purchase of Land for Light Keepers' Dwellings at Presqu'Isle			400 00	400 00
	Do. Burnt Island			100 00	100 00
	Do. McKie's Point			300 00	300 00
	Supplies on hand in Store			155 30	155 30
			16404 71	39199 02	55603 73

Under heading of Supplies and Repairs are included Works of permanent construction where needed, marked *

No. 7.

STATEMENT shewing the Total Amount expended under the Department of Public Works during the year 1859, as detailed in the foregoing Statements numbered 1, 2, 3, 4, 5, and 6.

STATEMENT.	Repairs and Maintenance.	Construction.	Miscellaneous.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.
No. 1	174346 76	113622 61	1801 75	289771 12
2	643 50	17785 52	....	18429 02
3	42126 52	268227 73	....	310354 25
4	60000 00	....	137739 11	197739 11
5	32872 50	....	....	32872 50
6	55603 73	....	....	55603 73
	365593 01	399635 86	139540 86	904769 73

B.

PUBLIC BUILDINGS.

REPORT OF MR. RUBIDGE, THE ASSISTANT ENGINEER AND ARCHITECT, ON THE FOLLOWING PUBLIC BUILDINGS IN CHARGE OF THE DEPARTMENT:

The Hon. John Rose,
Commissioner of Public Works,
&c., &c., &c.,

Sir,—I have the honor to Report, for your information, upon the following Public Buildings, and other works:—

PARLIAMENTARY BUILDINGS, TORONTO.

The Public Accounts of the year, shew an expenditure of $542.75, for the supply of twelve walnut arm chairs, and desks, and new tapestry, carpet, &c., for the use of the additional members of the Honorable the Legislative Council, upon the requisition of the Honorable the Speaker.

POST OFFICES.

LONDON POST OFFICE.

This public building, which presents a handsome front in the vicinity of the finest edifices in the city of London, is complete, both as to exterior and interior works; An extension of time was granted for providing the internal fittings, and the procuring plate glass for the fronts of the letter boxes from England. The building is now ready to be taken off the hands of the Contractor, and placed under charge of the Post Office authorities. The total outlay hitherto, inclusive of purchase of site, fitting up temporary Post Office, Advertising, Superintendence, &c., amounts to $33,750.30.

HAMILTON POST OFFICE.

No disbursements have been included in the accounts for the past year, upon any works of reparation previously called for upon this edifice; but at the urgent solicitation of the Postmaster, resident in the building, several desirable improvements have recently been placed under contract, to the amount (authorized by Order in Council,) of $785. These wants affect the safe keeping and preservation of the building, and are as follows:—18 pairs of iron shutters to windows, including painting; repairing the slate covering; and metal gutters of roof; introducing water pipes from the City Water Works; fixing hydrant within the building, as a protection against fire; 17 new winter sashes, glazed and painted; outside winter porches; two large wooden gates complete; and a portion of new wooden fencing, together with putting on new fastenings, bolts, locks, &c., to windows and doors.

KINGSTON POST OFFICE.

The expenditure that has taken place this year, on the above, has been the payment of the balance remaining over upon the contract and extra works, previously reported as complete, and for further fittings and furnishings required by the Post Office Inspector of the local division—inclusive also of the arrears of salary due to the Superintendent for his services, —in all $3,077.43 chargeable against the appropriation. The unsightly remaining portion of the Old Jail and stone walls contiguous, have been disposed of, by auction, for a small sum, with the view of the materials being cleared from off the ground, and properly completing the fencing and inclosing the new Post Office.

TORONTO POST OFFICE.

A small outlay was incurred at the instance of the Post Office Inspector, for building a brick chimney, putting in new grate, mantel piece and stone hearth $80.

POST OFFICE, MONTREAL.

A very general repair, and decided improvement in lighting the building, have been carried into effect within the past year, by removing the leaky roof covering of tin, and replacing it with one of gravel and felt—in putting new galvanised eavetroughs and flashings around the building—and renewing the rain conductors, constructing skylight, opening defective drains, altering the levels, putting in new pipes, and raising kitchen sink.

Three additional windows have been placed in the rear wall, to give light to the sorting office, general delivery office, hall, and stairway where previously gas was constantly required to be burning, in order to carry on the public business.—A new money order office has been partitioned off; a winter porch provided to side door; also the stopping and pointing up of the masonry; re-hanging window sashes—repairs of the plastered walls and ceilings, whitewashing and coloring the same, painting and general renovation.

The sum of $2173 covers the total outlay, all of which, from having been so recently undertaken, will fall in next year's accounts.

QUEBEC POST OFFICE.

No outlay has been called for on the old Building, in present use as the City Post Office, up to the date of this Report, but on the 1st of June last, Plans and Specifications prepared by an Officer of the Department, and approved by the Committee of the Honorable the Executive Council, were laid before contractors in the Cities of Quebec and Toronto, for the erection of a new Post Office Building on the Grand Battery, the site being that of the former Parliament House, and held under lease by the Province from a late Roman Catholic Bishop of Quebec.

The intentions of the Government in constructing the Building were to adapt it for the accommodation of the Legislature in the City of Quebec, during the interim between the removal from Toronto, and the completion of the contemplated Public Edifices, to be erected in the City of Ottawa. The lowest tender received and accepted, was that of Messrs. Elliott & Melville, of Brantford and Hamilton, for $32,730. The outside walls were to be built of red brick, &c., the particulars of which expenditure are, however, more fully detailed under the head of Parliamentary Buildings, Quebec.

For the purposes and wants of the local Post Office hereafter, it is believed the ground flat of the central building, will furnish more than sufficient room to accommodate the

Quebec Post Office, at a very moderate outlay for all the future alterations which may be called for, when vacated by the Legislature; while the site is central and convenient for the residents, and business men, having so frequently to resort thither.

CUSTOM HOUSES.

HAMILTON CUSTOM HOUSE.

In accordance with the requisition from the Minister of Finance, certain alterations in the interior arrangements of the new Custom House have been carried out, by changing the Long Room from the first to the second floor, and appropriating the first floor to the purposes of an Examining Warehouse, Appraisers, and Landing Waiters' Rooms.

The alterations above determined on, together with the death of the superintending architect, will have the effect of delaying the completion of the building, in all its requirements, until about the 5th of March next; the works remaining to be finished, being the pointing up the joints of masonry, grading and gravelling the yard, and some proposed improvement and extension of the drainage. The building will, however, be fully ready for the transaction of business by the opening of the navigation.

KINGSTON CUSTOM HOUSES.

The expenditure this year, in amount $1,420.70, has been for the dwarf wall of cut stone, surmounted by an ornamental iron railing; also for a dividing fence of wood, the levelling and drainage of lot, together with sundry repairs to the office furniture, gas fittings, &c., consequent upon the late Collector, Mr. Hopkirk, taking possession of the new building.

Several urgent wants and improvements have been suggested recently by the officer of the Port, in order to remedy the imperfect draught of the Hot air-furnaces, to obviate damp over the Portico, the defective ventilation in roof, and other parts of the edifice, and to provide a Wood Shed, and an entrance door, or means of access to the yard from the basement; these demands, some of which had been previously recommended, are, upon examination, found necessary, and are estimated to cost $1000.00.

TORONTO AND MONTREAL CUSTOM HOUSE.

No outlay has been incurred on either the Toronto, or Montreal Custom Houses.

CUSTOM HOUSE, QUEBEC.

This handsome edifice stands firm and secure upon its artificial foundations and is now far advanced towards completion. It will be handed over to the Collector on the 1st May next, for the future transaction of the business of the Port of Quebec; and the proprietor of the building leased for the present Custom House, has been notified that the premises will be given up on that date. Nothing remains to be done upon the exterior of the new building beyond finishing and cleaning up the fluted columns, laying the entrance steps towards the river and land fronts, the materials for which are now being prepared for laying, during favourable building weather in March and April. Some earth filling for the rear approach, and the formation of a macadamized road around the building, as called for in the specification, likewise remain to be completed.

The plaster work of the interior, together with the joinery, are being rapidly pushed forward by the Contractor, who is also putting in the hot air furnaces, pipes, &c.

The total amount by the last January Estimate returned for all contract and extra works was $194160, of which the amount paid thereon, was $189,796.

COURT HOUSES AND GAOLS.

NEW JAILS AND COURT HOUSES IN CANADA EAST.

Under the Act of 20 Victoria, Cap. 44.

During the month of July last, the contractors for these Public Buildings, in thirteen several districts, received instructions to proceed with the erection of seven of their number, the sites for which had been approved of by His Excellency; and as the difficulties growing out of a choice among competing lots at the *chef lieux* of other localities were removed, the remaining Buildings were commenced from time to time, and have advanced to a greater or less state of forwardness up to the present. The two sites most recently decided on, are those of Sorel and Industrie, where the contractors are now engaged in providing and laying down materials preparatory to Spring operations.

The only unsettled selection of a building lot applies to the Town of St. Hyacinthe, where two or more sites come into competition, and, owing to the recent destruction by fire of the former Court House at this place, a prompt decision of the question at issue is now more than ever necessary.

The basis upon which these buildings were to be erected, required that in all the localities they were to be constructed of stone, and covered with slate, at the following rates, completed according to plans and specifications.

St. Scholastique -	$17,500	Rimouski - - -	$17,800	Nelsonville - - -	$17,900
Industrie - - - -	17,800	Montmagny - - -	18,000	St. Hyacinthe - - -	17,000
Sorel - - - - -	17,600	Beauce - - - - -	18,000	St. John - - - -	17,000
Malbaie - - - - -	17,500	Arthabaska - - -	17,600	Beauharnois - - -	17,000
				Chicoutimi - - - -	17,600

St. Johns.—Of this building, which is the most advanced of all those contracted for, the masonry and brick work are found to be unexceptionable in character, and are completed, excepting some outside pointing to the stone work, which is properly deferred until mild weather. The slates for the roof are about to be laid over a covering of felt; the metal eave troughs are fixed in place. The clay pipe drain which was reported indispensable to free the foundations from water, has been laid down to the River Richelieu, a distance of about 1000 feet. A large quantity of prepared flooring and other materials is on the ground, the window sashes and iron work are being delivered, and the whole progress of the works gives evidence of an early completion in the spring. The amount expended is $10,514.52.

St. Scholastique.—This site is very favorable for drainage, requiring no extra outlay for this object. The foundations are all in to a height of one course of the base above ground level, and the lower beams are fixed in position; a quantity of rubble stone is also on the ground, and most of the cut stone, now being prepared at quarries in the vicinity, will shortly be delivered. The contractor has likewise made arrangements for manufacturing bricks in the neighbourhood.

Beauharnois.—This building, seated on elevated ground east of the village, has the masonry of the Court house carried up all round to the height of 13 feet, and the Jail wall to the sills of the first windows; about 70 toises of building stone, and 450 feet of cut stone are delivered; all the timber for joists, roofing &c., is at hand, as also some portion of the iron work; there are also furnished 200,000 bricks, and stone cutters are busily engaged at quarries, in providing more material, to ensure an early resumption of work in spring

SWEETSBURG OR NELSONVILLE.—The exterior walls are all up to top of base course. and the floor beams laid; a lot of 1800 feet of cut stone for sills, jambs, quoins, &c., is now being transported to the site, and about 12,000 feet of timber are on the spot, also 73,000 bricks delivered.

The supervision of the four above described Court Houses has been put under the charge of Mr. Larose, who has hitherto made periodical visits of inspection to each, twice every month.

ST. HYACINTHE.—Pending any decision on the site to be acquired for the new Jail and Court House in this place, it became necessary, for carrying on the judicial business of the District, to do certain indispensable repairs to the old delapidated building known as the Court House of St. Hyacinthe; and authority was obtained to make an expenditure thereon to the extent of $605.

On the night of Tuesday the 23nd of August last, the repairs of the building being at that time nearly completed, and an outlay of $490 having been made, a fire occurred in the wood shed of the Grand Trunk Railway Station immediately in rear of the Court House, the flames shortly communicated with the Court House contiguous, and ultimately destroyed that building, leaving only a quantity of rubble stone, brick, and other material fit for building purposes, valued at about $400, and which may probably be transferred to the contractors, for the new edifice.

BEAUCE.—When the season for laying masonry terminated, the superintendent of the works was relieved from his duties until the ensuing spring, after first seeing the walls covered up and well protected against frost. The progress then reported, shews that the exterior walls have been carried up to the height of the belting course of the first story in a satisfactory manner; and that the cedar sleepers are all delivered, and preparations made to collect materials during the winter months, for an active resumption of work when the weather will permit. The lot is reported to be susceptible of good drainage.

ARTHABASKA.—The works in this locality are reported by the superintendent last alluded to, who has also this second building under his charge, to have advanced favorably; the masonry shewing two courses over the belt course of first story, and one course higher around the jail portion of the building. The cedar beams are all in position, and much material was at that time on the ground, including 50,000 bricks, a quantity of cut stone, floor joisting, iron doors, &c.; and the supply was being increased by the contractors for the spring operations.

MONTMAGNY.—The walls are up to the height of four feet above the ground story beams; the foundations, for which great fears were entertained, and artificial support requisite, being but little above the high water of the Rivière St. Thomas, have, up to the present, stood well,—the best means which the ground would admit of, having been taken to drain the lot.

The whole of the bricks required are stored under cover in the vicinity, and two excellent quarries are at present supplying all the stone to be used in the main walls. The ashlar having to be furnished from the vicinity of Quebec, for which, as well as for the timber, it is understood contracts have been entered into.

RIMOUSKI.—The foundations of this building, only commenced in the autumn, are up to the ground level all round, and are protected from frost until building operations can be resumed. To get rid of the water from the basement of the building, will require the laying down a pipe drain of 9 inches diameter, with a discharge into the River St. Lawrence, 750 feet distant, the estimated cost of which increased outlay is $750; and, as it is found that in this neighbourhood, a covering of slate cannot long resist the violence of the prevailing winds; and one of tin is speedily corroded by the action of the sea air, it is proposed to effect a considerable saving by using shingles as a covering, well painting the same, and applying the difference in cost in diminishing the extra outlay rendered indispensable by want of drainage.

As the building will be isolated, the danger from fire to the roof will be confined to the Court-house itself.

Of building materials, there are upon the ground, all the cedar beams, 340 lineal feet of dressed stone plinth, and a few toises of rubble stone; but contracts have been made by Messrs. Sinclair and Skelsey for all the remainder of the timber, stone, and brick required.

Malbaie.—This Court-house has all the foundation walls and masonry laid up to the belting course of first story : the jail has been carried up to the height of one half the second story windows, with the iron gratings fixed in position.

The cedar beams of the ground floor are all laid; 140,000 bricks are either in the work or on the ground; the greater part of the floor joisting, about 40 toises of building stone, and much of the cut stone, have been delivered; The roofing-boards, lathing, and sand are on the spot; As also iron doors for safes, all the iron gratings, columns and girders for the jail and prothonotary's offices, together with clay pipes for drainage.

Difficulties having occurred between the sub-contractor and the foremen superintending the works, whereby unnecessary expenditure had been incurred, the Commissioner was under the necessity of dismissing two parties who had successively the charge of this building.

Chicoutimi.—The foundations are all in, with the exception of the jailer's basement; the stone being at hand, and ready for laying.

A portion of the Court-house walls is two courses above the ground level. The masonry is well covered up for the winter, and much building material is in readiness for resuming operations in April next. The walls are based upon the solid rock, and facilities are afforded for proper drainage.

On the 14th January last, the materials returned on the spot, were, 2711 feet of cedar beams, 310 cubic feet of white pine for joisting, 700 feet of stone base or plinth course, 10 toises of rubble stone, 336 bushels of lime under shed, and 432 bushels of sand, and since the above date, a large quantity of materials in cut stone, rubble, timber, &c., have been hauled upon the ground.

NEW CARLISLE JAIL AND COURT HOUSE.

In the County of Bonaventure, the present Jail and Court House are inconveniently confined to a building of the dimensions of an ordinary dwelling house; and upon an application from the Sheriff of New Carlisle, to the Executive Government, referred to this Department, a detached Jail of stone-masonry, the outside dimensions of which would measure thirty-six feet by thirty-five feet, has been recommended to be built to afford prison accommodation on a safer and more healthful arrangement; and by which improvement the existing building could be converted solely to the use and occupation of the Court and its officers.

The estimated outlay for the new building, and alterations in the old one, amounts to $4,508.

MAGDALEN ISLANDS—GULF OF ST. LAWRENCE.

The population of these Islands, judicially attached to the County of Gaspé, from their position in the open sea, require a separate local Court House and Jail, the nearest being at Percé, on the main land, distant about one hundred and forty miles. A plan and specification have accordingly been prepared for putting up a building of limited dimensions and cost, suited to the present wants of these Islands. By the estimate, it would appear that a stone building of the most moderate pretensions, consistent with any degree of security as a place of confinement, could not be erected for a less sum than $2400. From well informed parties, it is understood a favorable site offers itself on Amherst Island, the most important of the Magdalen group, and possessing one of the best harbors.

Building stone and sand, it is ascertained, can be procured in the vicinity, but it will be advisable that all the timber, joinery, and iron work should be prepared, fitted, and framed, at any convenient port in Prince Edward Island, New Brunswick, or Gaspé, ready for putting together at the site selected; and it has been suggested, as a means of economizing the expenditure, that the transport of these materials might be made in the Government schooner "*La Canadienne.*"

MONTREAL COURT HOUSE.

The outlay upon this building, has been confined principally to Insurance, but includes, also, a sum of $150 for additional steam pipes, to heat the Judge's Chambers, and other portions of the interior.

Upon a representation from the Prothonotaries, calling for certain precautionary measures against fire, and the better securing the valuable records contained in the vaulted basement, authority was obtained to provide iron frames and window shutters, and two iron doors to complete the fire-proofing in the basement, and also three other iron doors and frames in the party walls of attic, to cut off communication with other parts of the building.

Other requirements of the Prothonotary, since authorized, are, an iron railing in the record office, shelving in notarial vaults; closet and record case in judges' room estimated at $460, the accounts for which, have not yet come in.

Very recently, an examination has been made, under this Department, into the dangerous state of much of the plaster work, heavy mouldings, and ceiling ornaments in the court rooms, vestibule, and other apartments. The Report of two professional gentlemen thereon, urges the necessity of strengthening the roof timbers, upon which the weighty ceilings are made to depend, bolting the massive trusses securely to the walls, securing the girders in the Criminal and Police Courts, and of generally repairing the plastered walls, surfaces, and ceilings, where required These indispensable wants, not admitting of delay, are about to be proceeded with, to quiet the public apprehension on the subject. With reference to the contemplated improvements in the vicinity of the Montreal Court House, for which the sanction of the Executive was obtained at the close of the year 1858, under which, the Corporation of the City of Montreal were to remove the old Jail, in order to throw open the Jacques Cartier Square to the Champ de Mars, and to erect a *jet d'eau* in front of the building, it is expected they will shortly be commenced by the City Authorities.

As a preparatory step to the foregoing, the armory of the Montreal Active Volunteer Force, has been removed from the old stone Jail, (about to be taken down), and wooden racks for the small arms and accoutrements, have been provided in the drill-room, known as Victoria Hall, fronting on the Montreal Haymarket, and rented for the use and occupation of the Volunteer Corps. The outlay under this Department, to render the latter building more secure, and for the safe custody of so much valueable property, has been $950.

Consent has also been given to the City Council, to erect a cut-stone Engine-house, near the south-east angle of the Court House, and within a defined limit; so that while contributing to the safety, it will offer no unsightly obstruction to the view of the neighbouring edifice. This Department reserves the right to have the Engine-house removed, without compensation, whenever so required.

The offices of the Registrar for the City and Island of Montreal, are now conveniently situated in the vaulted basement of the South-East wing set apart for this purpose: they are spacious and sufficiently lighted, and the records are here perfectly safe from fire.

SHERBROOKE COURT HOUSE.

The contract for general repairs and improvements, with some additional wants, embracing a total of $3,225, was completed by the first of June last.

The outlay comprised the taking up and renewing the decayed sleepers and joisting of the ground story; raising and relaying the sunken floors with new material; rebuilding and altering the flight of stone steps at principal entrance; re-covering the roof with tin; taking down damaged plaster work, and restoring in perfect condition ceilings, walls, cornices, &c.; renewing the moulded skirting, flooring, window architraves, and other joinerwork wheresoever requisite, together with general cleansing and painting the interior. Also, putting up the front inclosing fence, entrance gates, &c. Nothing has been done towards remedying the bad state of the jail so frequently complained of, beyond a trifling outlay in securing the roof from leaking, for the reason previously assigned in the annual Reports of former Commissioners of the Department.

THREE RIVERS COURT HOUSE AND JAIL.

The expenditure for the past year has been confined to newly covering the roof with tin, under a contract for the same; painting and sanding the projecting cornices and eaves; and amounts to $1,112.38.

AYLMER COURT HOUSE AND JAIL.

The only payments on this building have been for some few reparations to roof, plumbing work, and pointing walls, &c. done in 1858—in amount $18 65.

COURT HOUSE, QUEBEC.

This building continues in a fair condition, a small expenditure of $50 only, has been incurred for securing better privacy for the Judge's Chambers, by shutting off the public from intrusion, and by a new door in the corridor, and window to light the passage.

MONTREAL JAIL.

The only outlay, under this Department, during the past year, has been a provision in the north wing for separating the female convicts from the crowded wards in other parts of the building, by flooring over the open corridors between the upper and lower tiers of cells; a small sum only was requisite for this essential improvement.

Proposals have been made to the City Corporation with the object of reducing the large annual tax for water supply to the Jail, by the future payment for the quantity made use of, to be estimated by metre, in lieu of a fixed annual rate.

Objections and difficulties, as to the size of metre necessary, (on the part of the Water Committee,) have hitherto delayed any satisfactory arrangement.

The labor of the prisoners has been usefully employed, during the summer, in constructing a new chimney, and other repairs, under the supervision of Mr. McGinn, the Jailer.

QUEBEC JAIL.

Plans, specifications, and estimates were prepared by the officers of the Department at the urgent solicitation of the authorities, for placing this delapidated building in a state of security and repair. The stone work, especially of the projecting portions forming the water closets in rear of the building, had to be propped and shored up to prevent their falling into the yard. All the wooden window frames were more or less rotten, the roof requiring to be staunched, the metal gutters and rain spouts renewed, and the drains having become choaked up and offensive.

The estimated outlay, covering many other wants, was nevertheless, reduced to the sum of $4653, by dispensing with works, not affecting the safe keeping or health of the prisoners, such as new fencing, cementing outside face-walls, painting, &c. Advertisements for Tenders were recently inserted in the public prints of the city, and authority obtained to commence the work.

Meanwhile the Board of Prison Inspectors for the Province having come into operation, and these gentlemen having had the competition Plans for a new jail in Quebec submitted to them by this Department, for their opinions, intimation was received that an early decision would be certainly arrived at, with the view to the erection of the desired new jail. Under these circumstances the expenditure of so large a sum as $4653 on the old building was recommended to be deferred, if not altogether dispensed with.

The Board of Prison Inspectors have, however, suggested a small outlay to take place in the spring for improving the sanitary state of the Jail, by opening and cleaning drains and closets, which may require about $200 to be spent for these desirable objects.

In the event of the new jail being shortly built, it will be imperative that the long pending question between the Provincial Government and the military authorities, respecting the proposed exchange of land known as the Bonner property, for other land, as the site of the new jail, in order not to interfere with the defences of Quebec, should be brought to an early issue—and communications on the subject have been resumed with the Ordnance Department.

KAMOURASKA JAIL.

A contract was entered into with Charles Touchette, for the construction of a new jail, to be attached to the present Court-house, originally an ordinary dwelling house; This jail was imperatively called for, owing to numerous public complaints respecting the smallness, insecurity, and unhealthiness of the cells in the basement of the old building. The cost of a new wing of substantial stone masonry, upon the lowest tender, with some extra expenditure upon the foundations, amounted to $8,100.

The stone walls, from a recent examination, are reported to be of good workmanship, and are completed; the roof timbers and boarded covering, are also ready for shingling, but the brick work has suffered materially from exposure to frost, and the arches of the cells must be rebuilt.

To carry off the water from the basement, which has given rise to the injury above complained of, the construction of a drain, partly in rock, is indispensable.

The preparations of materials of all kinds to complete the building by the first of June, are being proceeded with.

The jailer's dwelling adjoining the present court house, being inconveniently small and insecure against the weather, this officer has been allowed to rent a house for his family during the winter, until this want can be remedied.

The expenditure to the present time amounts to $5,074.04.

BONNER PROPERTY.

Upon this property there are two tenements of wood, from which the Government have drawn a rental, respectively of $60 and $240: the latter includes the farming land of about 38 acres. A portion of this rental has not been received during the past year, from the inability of the party to pay arrears: it is therefore intended to take legal steps to eject the present tenant, and to lease the property to others offering sufficient security for future payments.

TORONTO BARRACKS.—NEW FORT.

Under the Act 18 Vic. cap. 91, the Governor in Council is empowered to place in class B, such portions of the Ordnance estates enumerated in the second schedule, as his Excellency may deem fit for the purposes of the Government, and for keeping in repair the lands and property retained for the defence of the Province. The Toronto Barracks, occupied with the latter object, and having been placed in Class B, authority was obtained to expend $108.00 in improving the sewerage, and other necessary repairs to outbuildings. These works have therefore been carried into effect.

QUEBEC ARMORY AND GUN SHED.

In consequence of the Store keeper in charge of the Armory having to vacate the apartments occupied by him in the building on the Esplanade fitted up recently for the Department of the Honorable the Post Master General, application was made by the Colonel commanding the active Militia force at Quebec, for accommodation being provided over the gun shed in rear of the General Post Office, as a residence for the Serjeant in charge. This Expenditure, covering $117.80, consisted in partitioning off a portion from one end of the Armory, plastering and securing it against the winter; all of which have been completed.

Upon the gun sheds at Toronto and Hamilton the only payment has been for outstanding claims against the latter building, amounting to $55.85.

MARINE HOSPITAL.

The wharves and landings surrounding the Property have been either completed or put in a thorough state of Repair.

The extensive wooden building in rear, intended as a Fever Hospital, has been furnished in its outside requirements, such as clapboarding, painting, putting in windows and hanging entrance doors; but the interior wants, as flooring, plastering, joiners' work, remain to be done.

This building is required for the isolation of infectious cases that are now lodged in the Main Hospital.

By a recent examination of the Furnaces and hot air pipes for heating the new wing, the necessity of securing them against accident by fire in a more satisfactory manner, to meet the views of Inspectors and Insurance agents, became apparent. The cost of these precautionary measures will be $200.

It is found also that the timbers and flooring supporting the water tanks in the attics, have, owing to leakage, become decayed and dangerous, and an expenditure of $60 has been authorized to restore whatever may be defective.

The expenditure for the past year amounts to $1638.80

GROSSE ISLE QUARANTINE STATION.

Nothing has been done in new works, or repairs of existing buildings, during the past year; the outlay called for being postponed for the present.

LANDING PIERS, NORTH AND SOUTH SHORES OF THE RIVER ST. LAWRENCE.

All the Landing Piers were in good condition when last examined, with the exception of that at Malbaie on the North Shore, upon which an Expenditure of $314 has taken place, in repairing and sheeting with hardwood plank the outer angles of the Pier head, and in bolting on new fenders in place of those carried away by the running ice; as well as re-filling the piers, from which the stones had been washed by the force of the sea.

This Pier, not having been originally raised sufficiently above high water, the waves have recently displaced a portion of the filling above described, and it will be requisite to plank over the full width of the Pier in place of the present covering of Macadamized stone, the cost of which would not exceed $400.

NORMAL SCHOOL, MONTREAL.

Various reparations and improvements have been effected upon the buildings occupied by the Normal and Model Schools in Nôtre Dame Street, comprising the raising the ceilings of the Lecture Halls, Schools and Class Rooms, &c., which were performed by contract; and the disbursements for the year, including a previously unsettled claim of a former Clerk of the Works for supervision, amount to $935.75.

NORMAL AND MODEL SCHOOL, QUEBEC.

Prior to the removal of these educational establishments from the old Castle of St. Lewis, to make room for the Crown Lands Department, an expenditure of $110.02 had been incurred for ordinary carpenters' repairs, painting, &c., and, upon the Government leasing the new stone building from the Pères Jesuits, in St. Ursule Street, for the Normal School, it became necessary to make numerous alterations and fittings, and to lay on water and gas, upon requisitions submitted by the Superintendent of Education for Canada East, in order to adapt this building to the wants and accommodation of the Laval Normal School. These works have accordingly been carried to completion, and their cost is included and embraced in the yearly sum for rents and repairs of public buildings.

SPENCER WOOD.

Considerable repairs were required, owing to the perishable character of the wooden buildings which constitute the larger portion of these premises, as well as from the Residence itself having been untenanted during an interval of four years.

Instructions were, nevertheless, given to confine the prospective wants and reparations within the most economical limits. To prepare the buildings for the reception of his Excellency the Governor General, a memorandum of sundry alterations and improvements had been furnished, by which the interior convenience of Spencer Wood as a Family Residence was increased, and access greatly facilitated from one portion of the Building to the other, in providing new sleeping apartments, additional passages, bath rooms, &c., freshly papering halls and chambers, and painting the suite of State Apartments.

These necessary Repairs have entailed an expenditure of $4,299.35.

PARLIAMENTARY BUILDINGS AND NEW POST OFFICE, QUEBEC.

In compliance with instructions, the proper officer of the Department proceeded to Quebec in the month of April last, with the view of reporting upon the accommodation offered in that City for the ensuing meeting of Parliament; this duty obliging him to inspect the large buildings known as the Laval University, the Jesuit Barracks, the Music Hall, in St. Louis Street, with adjoining properties; and the New Market Hall, built by the City Corporation, at the Cul de Sac, Champlain Street. Upon the facilities afforded by each of which, a Report was received, dated April 4th, 1859.

On the twentieth of the same month, an estimate was also submitted by that officer, in pursuance of instructions, for erecting plainly constructed buildings, faced with English fire-brick, but with temporarily constructed wings of framed wood-work (which might, if required, be removed hereafter), to occupy the site of the former Houses of Parliament, in possession of the Government, on the Grand Battery, Quebec. The estimated expenditure, including the approximate cost of all "necessary fittings-up, for the meeting of the Legislature," amounted to Sixteen Thousand Pounds. The central portion of the buildings was thereafter intended to become the City Post-Office, as had been recommended.

In accordance with the authority of Council, plans and specifications were prepared with the utmost dispatch, and placed before the public for competition tenders, upon the 10th of June last. The outlay upon the block of buildings, including the proposed wings, was, however (exclusive of furnishing and fitting up), restricted, by order of the Government, to £12,500, and the entire building was to be constructed of Canadian red brick.

Twenty-five tenders were received, ranging from £8,192 10s.,—the lowest,—to £14,375, the highest amount; and a contract was forthwith entered into with Messrs. Elliott and Melville, of Canada West, offering the lowest tender, to erect the buildings complete for the former sum. From the low rate at which the contract had been taken, (owing to the dearth of employment, and a reduction in prices of materials,) it was afterwards decided to substitute English fire-bricks, for Canadian red bricks, as a more durable facing for the exterior walls, in addition to which, and in order to comply with a Corporation Bye-law, interdicting the use of clap-boarding on the outside of buildings, the rear and flank elevations were coated with cement, and painted with oil paint in lieu of weather-boarding, as specified; and where not affected by frost, owing to the lateness of having been put on, this surface coating is found impervious to the weather, in this very exposed position.

The heating with Mills' Patent furnaces; the requisite plumbing and water-closets; the brass-fitting and gas-work; the upholstery, renovation, and fitting up of the old furniture, hanging bells, laying on water, &c., together with a plain inclosing wooden fence, and planked walks, collectively, have been confined nearly within the limits of the sum first contemplated, namely, £12,500.

The buildings are sufficiently substantial for the objects called for in their erection, affording, it is believed, the best accommodation in all their interior arrangements, that the limited foundation walls and site would admit of. The superficial area or ground covered by the Parliamentary Buildings in Toronto, as compared with the extent of space occupied for the same purposes on the Grand Battery, being as 34,800 feet, in the first locality, to 17,250 feet in the last named place, or double the space. Increased accommodation can at any future time be obtained at the pleasure of the Legislature, by adding another story in height to the present wings, but the intentions of the Government have been fulfilled by the Department, in restricting the cost to the lowest possible sum.

All such fittings, cloth doors, desks, carpets, gaseliers, bells, and furniture generally, removed hither from Toronto, which could in any way be adapted to their new position here, have been made use of; but with the greatest desire and efforts to ensure economy, many new articles in the simplest style of decoration have been found indispensable for the Chambers of the two Houses. The whole construction and preparations having been energetically pushed on to completion, are ready for the opening of Parliament on the 28th instant, within a period of about seven months from the time of laying the first brick upon the walls.

The payments to the close of the year expired, appear in the Appendix to this Report.

DEPARTMENTAL BUILDINGS, QUEBEC.

Preparatory to the removal of the seat of Government from Toronto to Quebec, the buildings sought to be rented from private individuals in the latter city, for public offices, were after long negotiation, secured in the most central and desirable localities. They may be enumerated as follows:—

The Department of the Finance Minister, the Customs and Audit Branches, located in the dwelling house of Mrs. Leaycraft, on Ste. Geneviéve Street, at an annual rental of £225.

The Department of Public Works, occupying a house rented from Henry Chapman, Esquire, on the corner of Ste. Geneviéve and Des Carrières Streets, annual rental of £150.

The Receiver General's Department, and the Bureau of Agriculture, being accommodated in two houses rented from the heirs Jones, and forming the corner of Haldimand and St. Louis Streets, annual rental, £300.

The Honorable the Executive Council, the Provincial Secretary, the Honorable Attorneys General, East and West, and the Superintendent of Indian Lands, have all their offices in St. George's or Union Buildings, fronting the Place d'Armes, leased from the heirs Sewell, at a yearly rental of £450.

The office of the Adjutant General of Militia, held at the house No. 33 St. Louis St., at an annual rental of £70. Until the officers and clerks had taken possession of the Parliament Buildings, a portion of the Music Hall in St. Lewis St., and a private dwelling on the Cape, rented from Mr. Stayner, were taken for the use of the Assembly and Council branches of the Legislature.

The remaining Departments were accommodated in buildings belonging to the Provincial Government, as follows. The Post Master General's Department, in what was formerly the residence of the late Chief Justice Sewell, on the Esplanade.

The Crown Lands Department, and the office of the Provincial Registrar, occupy the Old Château or Castle of St. Louis, vacated by the Normal and Model Schools of Quebec.

In fitting up what were heretofore mere private abodes, affording, in frequent instances, too limited an extent of office room for the large number of *employes*, and the annually increasing documents and records of the Province, every effort was made to keep down the expenditure.

Upon the building tenanted by the Executive Council, and the Receiver General's Department, but little outlay was called for. The first mentioned premises being put into a fair state of repair by the proprietors, as one of the conditions upon which the Commissioner consented to rent the same. The notarial leases for these buildings, as well as the others alluded to, are made to cover one or more years' tenancy, at the option of the Government. The expenditure up to the 1st January last, from the books of the Department, shew, on St. George's buildings, $176.50; on Jones' Buildings $454 25.

Upon the office of the Department of Minister of Finance, the expenditure refers chiefly to the partitioning off and sub-dividing rooms into the required number of offices, and providing a dwelling for the office keeper,—outlay $969.81. Upon the premises occupied by the Department of Public Works, it was found necessary to raise the ceilings of the attic chambers, and newly partition off the apartments for the clerks, also to convert the stabling in rear into additional offices, and lodgings for the guardian and messenger; the two brick stories raised thereon being severally in use as the map-room and Engineering branch, and also forming the private office of the Honorable the Minister of Finance, and communicating with his department adjoining. The outlay has been $2,047.07.

The Department of Crown Lands, and office of Provincial Registrar, from the numerous wants, arrangements, and alterations for their staff, have incurred an outlay of $1,043 .36. These, together with the private offices of His Excellency the Governor General and Aides de Camp, occupy the same building.

The General Post Office, on the Esplanade, has been thoroughly repaired by providing new floors, window sashes, and frames, newly plastering walls and ceilings, and coloring and whitewashing the plastering; painting and repairing all woodwork, &c. New chimnies and repairs to roof, eave-troughs and rain water pipes; and, further, erecting a brick wing in rear, to give extra offices, and building up brick fire-proof safes attached to the side. The works being wholly performed by contract at an outlay of $2,623.72.

All of which is respectfully submitted.

F. P. RUBIDGE.
A. E. P. W.

C.

FROM THE SUPERINTENDENT OF THE WELLAND CANAL, FOR 1859.

WELLAND CANAL OFFICE,
St. Catharines, 20th December, 1859.

SIR,

I have the honor to submit herewith my Report of the works upon this Canal, as required by your letter, No. 29,896, of the 3rd instant. These works are designated as follows, viz:—the first being that of Construction, and paid from the appropriations made by the Legislature; and the second, works of Maintenance and Repairs, which are paid from Canal Revenue.

WORKS OF CONSTRUCTION.

The works authorized and in progress, comprise the enlargement of the portion of the Canal between Allanburgh, and the rock cut at Ranney's Bend, a distance of 12½ miles. Being that, which requires widening and deepening, to admit of Lake Erie being adopted as its summit level.

Throughout the past season, there have been four Steam Dredges, or Excavators, employed upon this work, and the necessary excavations, above the water surface, have been completed, through the means of laborers and teams.

The operations of these dredges have been principally confined to completing the Canal south of the junction, for a distance of about 5 miles, as also operating north of the aqueduct for a distance of about one mile, thereby enlarging the dimensions of the Canal to 50 feet width of bottom, at the level of the mitre sill of the old lock at Port Colborne, and increasing its depth one foot below this level, being that of the rock cut bottom.

WORKS OF MAINTENANCE AND REPAIRS.

Previous to the Canal being opened, a sudden freshet from the Twelve Mile Creek caused an overflow of water, by which the Canal Banks were materially injured, and the stuff washed therefrom deposited in its channel. The disastrous characters of the floods, brought down by this Creek annually, have been already reported on repeatedly, and on this, as well as on former occasions, every precaution was taken to guard against them as far as practicable. Otherwise the consequences would have been far more disastrous. Before the navigation could be opened, it was necessary to repair these damages, and remove the obstructions.

The Canal was opened, and vessels were passing on the 1st April. It was closed by frost on the 8th December, making 252 days of navigation, (inclusive of its interruption) from its opening to its being closed.

The navigation was twice interrupted, viz :—first by a vessel breaking the gates of lock No. 7, on the 30th of April, which caused a detention of 3 days. Againon the 16th June, the gates of lock No. 25 were carried away by the "Quebec" of Kingston. In consequence of which the navigation was suspended 8 days, as the great rush of water, from the long level above that lock, produced several large breaches in the Canal embankments, as well as occasioning considerable other damages. In making the repairs for resuming the navigation, a large amount of labor and expense was necessarily incurred, and consequent delay caused.

It has been suggested, to prevent a like recurrence, that a guard lock be constructed above lock No. 25. Its probable cost will be $19,000; an additional expenditure of $1,500 will be necessary, in widening the channel above it, to afford lay by room for vessels.

By a severe storm (in March last) upon Lake Erie, the Piers at Port Colborne and Maitland, were considerably damaged ;—the necessary repairs were effected in due course. The amount expended upon these repairs, is shewn in the Schedule. Again on the 26th of November, as was at the time specially reported, they were materially injured through the same cause,—the repairs are not yet made.

But sums are included in the estimate for making them, as well as providing materials, &c., for an increased height, to prevent the possibility of a similar result.

The Schedule of Expenditures, made upon the *Repairs,*—shews the amount expended in providing spare Lock Gates, to meet casualties, as well as protecting and raising the Canal embankments, &c., to admit the passage of vessels, drawing 10 feet of water.

Schedules Nos. 1 *and* 2—shew the several appropriations made by the Legislature, with the expenditure to 1st December, 1859.

An appropriation of $60,000 will be required to prosecute the necessary Dredging operations, in widening and deepening the Canal—above Allanburgh—during the *year* 1860.

Schedule No. 3—gives the cost of maintenance and repairs of the Canal *for this year.*

These expenditures have been paid from the tolls :—

The cost of management is - - - - - - - - -	$34,442 22
Do. of repairs - - - - - - - - - - - -	35,336 36
Total management and repairs - - - -	$69,778 58

The Expenditure for Management and Repairs shewn in the *Detailed Schedule*—O this $17,791 24 has been expended upon repairs of breaches done by vessels, damage done to the piers by storms, and making repairs of damages occasioned by flood water.

Schedule No. 4—gives the water power, and other property leased to this Canal, with the erections, &c. :

The annual rent is - - - - - - - - - - - -	$ 8,621 08
The amount paid in 1859 is - - - - - - - -	10,545 91
The balance remaining due to 1st instant - - - -	7,633 99

All necessary and due exertion has been made in endeavoring to collect the rents, and towords the colleeting of the arrears proper action is being taken.

Schedule No. 5—shews the land disposed of not required for Canal purposes.

Schedule No. 6—gives the vessels and other property upon which penalties have been imposed in consequence of the infringements of Canal Regulations.

Schedule No. 7—gives an approximate estimate of the probable cost of making *the repairs for* 1860, amounting to $20,000, including the construction of 8 gates for the Mountain Locks, and that for repairs, and raising of piers at ports Colborn and Maitland, and construction of 6 gates for the Allanburg and Port Robinson Locks, $17,000.

Appended is a Statement shewing the Revenue of this Canal for the last 3 years.

Being from the Tolls last year $124,145 78, less by $83,,625 74 than its Revenue for 1858 ; 1,137 more vessels passed through the Canal in 1858, than during 1859.

The foregoing, with the accompanying Schedules, affords, I trust, all the information required.

I have the honor to be,
Sir,
Your obedient servant,
(Signed,) S. D. WOODRUFF.

To the Secretary of Public Works Quebec.

WELLAND CANAL.

Table of its Revenue for the last three years

	1857.	1858.	1859.
	$ cts.	$ cts.	$ cts.
Collected at Colborne	161,319 91	153,219 20	81,305 63
Do. Robinson	4,514 13	3,521 27	2,804 20
Do. Maitland	3,465 62	1.426 33	1,152 29
Do. Dunnville	3,536 62	2,461 88	3,667 33
Do. St. Catherines	2,896 66	1,668 47	1,251 78
Do. Dalhousie	57,204 44	45,444 37	33,964 55
	232,437 38	207,771 52	124,145 78
Collected on Rents	9,021 07	13,068 19	10,545 91
Do. Land Rales	539 00	804 56	200 00
Do. Fines and Damages	595 00	947 29	4,176 82
	242,592 45	222,591 56	139,068 51

WELLAND CANAL.

SCHEDULES 1 TO 7.

Expenditure and Works of Maintenance and Repairs—Annual Rents of Water Power—Lands sold and Leased—Fine and Damages—and probable Cost of future Repairs.

WELLAND

SCHEDULE No. 1.—Shewing the several appropriations with the Expenditures (Estimate for work done in month of November included,) together with forth, with the amount of £76,715 voted thereon.—The balance required

WHAT WORKS.			Amount of Estimate voted.
			£ s. d.
For the several Works enumerated in previous Report, now completed, and the amounts corresponding with last year's Report			126338 4 5
SCHEDULE No. 2			
Shewing the Estimates to complete the several Works set forth with the Amounts appropriated for the same and the Balance required to be appropriated to complete them.			
Basin below Lock at Colborne	✓£18200		
Collectors' offices and residences, Ports Robinson, Maitland and Dunville	2500		
Raising Locks	✓ 4000	Appropriated in	
Finishing deep cut to 50 feet bottom, sections Nos. 15 and 16	✓ 39420	1854, 18 V. c. 4,	
		£58340	
Sections 17 to 26, widening to 50 feet bottom	✓ 64554		76715 0 0
Extension of south end east pier at Dalhousie	✓ 3000		
Superintendence and contingencies	✓14021	in 1858,	
For second towing path on east side of Canal from Hunt's Bridge to Marlatts	✓ 4525	22 V. c. 22, 12500	
For Culvert at Brown's ditch	✓ 2750		
For ditching on the feeder	✓ 1000		
For bottoming Canal above Thorold	✓ 500		
For lands and other damages	✓ 7400	in 1859,	
For enlargement of harbour at Dalhousie and pier work, clearing out basin	✓ 12500	22 V. c. 13, £5875	
Do. at Colborne and do. on south-east side	✓ 16000	£76715	
Do. do. and do. on south-west side	✓ 6250		
Guard gates at Thorold	✓ 5125		
Raising banks for increased accommodation and for raising piers at Ports Colborne and Maitland	✓ 3763		
Total value of the foregoing proposed works	£204568		76715 0 0
Amount of the same voted			204053 5 5

in 1854......£58340
1858...... 12500
1859...... 5875
} £76715

Amount required to be appropriated to complete the several works enumerated in Schedule No. 2..................£127853

Welland Canal Office,
St. Catherines, 20th December, 1859.

CANAL.

made on the Welland Canal for works in progress ending 30th November, 1859, SCHEDULE No. 2, shewing the several Estimates to complete the works set to be appropriated to complete the works set forth is £127853.

Amount of Estimate voted.	Amount expended to 1st Jan., 1859.	Expended from 1st Jan., 1859, to 1st Jan., 1860.	Total Amount expended to 1st Dec., 1859.	REMARKS ON WORK.
$ cts.	$ cts.	$ cts.	$ cts.	
....	503133 36	....	503133 36	
....	65697 40	....	65697 40	Completed. Balance of this Estimate applied upon payment of Lands acquired.
....	16000 00	....	16000 00	Completed.
....	....	....	....	In progress.
306860 00	141166 90	42650 00	183816 90	do.
....	10025 26	....	10025 26	Completed.
....	34818 25	4497 50	39315 75	
....	....	1581 75	1581 75	
306860 00	267707 81	316437 06	48729 26	
812212 89	770841 17	819570 42	48729 82	$7357 53 excess of Expenditure over Appropriation.

(Signed,) S. D. WOODRUFF,
Superintendent Welland Canal.

SCHEDULE NO. 3.—Detailed Schedule of the gross amounts of Monthly Expenditures to 1st

1859.	Sheet No. 1. Division No. 1. Office Establishment, Clerk, Paymaster, &c.	Overseers, Lock and Bridge Tenders, Harbour Masters.	Lighting Canal with Gas from Lock No. 2 to No. 25 inclusive.	Oil furnished for lighting other parts of the Canal, not lighted with Gas.	Advertising list of vessels passed through Canal, Printing, Postage, Stationery, Telegraph communications, Office Furniture, Fuel, &c.	TOTAL AMOUNT OF MANAGEMENT.		Repairs of Bridges.	Carpenters constructing and making repairs upon Lock Gates and Bridges, Laborers raising Embankments, Ditching, &c.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.		$ cts.	$ cts.
January	132 00	946 50	....	....	10 00	1088 50	....	....	225 06
February	132 00	1135 87	....	....	4 71	1272 58	....	....	573 37
March	132 00	1895 13	....	110 12	107 32	2244 57	....	....	696 89
April	132 00	3204 00	....	321 87	19 26	3679 13	....	....	378 20
May	132 00	3187 50	....	....	....	3319 50	....	76 37	396 95
June	132 00	3148 12	....	106 88	155 46	3542 46	....	....	979 68
July	132 00	3142 00	2232 84	....	....	5506 84	....	35 91	600 00
August	132 00	3148 37	....	260 00	15 43	3555 80	....	....	743 41
September	132 00	3129 50	....	107 85	85 45	3454 75	....	214 97	....
October	132 00	3132 75	....	211 88	12 00	3488 63	....	....	....
November	132 00	3142 62	....	....	14 84	3289 46	....	....	....
	1452 00	29214 36	2232 84	1118 55	424 47	34442 22	....	327 25	4593 56

Of the above expenditure for Repairs, amounting to ....

There has been expended upon Repairs of Damages done to the Piers at Port Colborne by storm of 29th
Do do do do do do do 18th
Do do do do do Port Maitland do 29th
Do do do do by the "Mohegan," of Detroit, by breaking Gates at
Do do do do by the "Quebec," of Kingston, in breaking the Gates
Do do do do by the "Typhoon," of Milan, in breaking the Bridge
Do do Replacing two Gates at Lock No. 1, partly from old materials..........
Do do Repairs of Damages caused by flood water, as reported to you on the
Do do in constructing four extra Gates for Colborne Lock, 3,179, and two

The Balance of Expenditure upon Repairs has been upon Lock Gates, Bridges, Canal Banks, &c ....

Welland Canal Office,
St. Catherines,
20th December, 1859.

on the Management and Repairs of the WELLAND CANAL, ending the year 1859, December.

Castings and Iron Works for Bridges, Lock Gates, &c.	Lumber and Timber furnished for constructing Lock Gates and Bridges, and Repairs of same.	Raising, Repairing Embankments, Scowing Clay and Gravel for raising and facing Embankments, Dredging, &c.	Repairs, Piers at Port Colborne.	Repairs, Piers at Port Maitland.	Sundry Materials furnished, Paint, Oil, Spikes, Nails, Rope, Shovels, &c.	Repairs, Bridges and Waste Weir at Dunnville and Sulphur Creek.			TOTAL AMOUNT OF REPAIRS.	TOTAL AMOUNT OF MANAGEMENT AND REPAIRS.
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	cts.	$ cts.
457 00									682 06	1770 56
221 62									794 99	2067 57
624 20	491 50	1444 60							3257 19	5501 76
521 07	178 05	1290 42	900 00		125 80				3393 54	7072 67
482 64		1095 36	1729 80		126 24				3907 36	7226 86
1337 70	103 98	4271 56		3446 59	237 48				10376 99	13919 45
707 92	72 41	1834 59			93 38				3344 21	8851 05
247 48		2068 68			47 90	1672 77			4780 24	8336 04
329 30	313 73	749 25				1077 71			2684 96	6139 71
393 09	25 53	496 16	100 00		96 86				1111 64	4600 27
419 45		583 73							1003 18	4292 64
5741 47	1185 20	13834 35	2729 80	3446 59	727 66	2750 48			35336 36	69778 58

		35336 36		
March, 1859	2629 80			
October, 1859	100 00			
March, 1859, Gates, Repairs, Banks, &c	3446 59			
Lock No. 7, on 30th April, 1859, including eight new	1953 00			
at Lock No. 25, on 16th June, 1859, including eight new	5953 00			
at Port Robinson, 27th August, 1859	208 85			
	600 00			
19th March, 1859	3500 00			
Spare Gates for Mountain Lock, partly from old materials, $421 00	3600 00			
	13345 12			
TOTAL		35336 36		

(Signed,) S. D. WOODRUFF,
Superintendent,
Welland Canal.

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the Annual Rents of Water Power leased, and the Rents of other property situated on the line of the Welland Canal, with yearly Rent, together with arrears of Rent, the Amount of Payments made in 1859, with the Balance due the 1st December, 1859.

Where situated.	OWNERS.	Description of Machinery.	Yearly Rents.	Amount of Rent with Arrears, to 1st July, 1859.	Amount of Payments to 1st Dec., 1859.	Balance due on Rents to 1st Dec., 1859.	REMARKS.
			$ cts.	$ cts.	$ cts.	cts.	
Port Dalhousie	Robert Laurie & Co	Grist Mill	197 30	295 95	295 95		
do	Robert & J. Laurie	Grist Mill	240 00	360 00	360 00		
do	Robert & J. Laurie	Lot ½ acre land	20 00	30 00	30 00		
do	Reuben Morrison, now Sampson, Smiley estate	Saw Mill	137 00	137 00	....	137 00	Water shut off. In hands of Solicitor for collection.
do	Alex. Muir	Floating Dock	76 00	76 00	76 00		
do	Donaldson, Andrews and Ross	Dry Docks	100 00	100 00	100 00		
do	Jas. Mavor, now John Johnson	Lot	20 00	30 00	....	30 00	In hands of Solicitor for collection.
do	George A. Clarke	Wharf	80 00	80 00	80 00		
Lock No. 2	John L. Ranney, Now Bank of Upper Canada	Grist Mill	260 00	260 00	130 00	130 00	Mill burnt. No water used.
St. Catherines	Water Power Company	Surplus Water from Lock 11 to 2	500 00	500 00	500 00		
do	Calvin Phelps, now Bank of Upper Canada	Grist Mill	150 00	450 00	375 00	75 00	
Lock No. 4	Calvin Phelps, now Bank of Upper Canada	Wharf Lot	40 00	100 00	80 00	20 00	
Lock No. 5	Richard Collier	Saw Mill	167 66	335 33	335 33		
Lock No. 10	Thomas Towers, now Brownlee and Stinson	Grist Mill	140 00	280 00	280 00		
Lock No. 12	Orson Phelps, now assigned to Welland Canal Loan Company	Saw Mill	124 00	186 00	186 00	....	Welland Canal Loan Co.
Lock No. 22 to 11	Welland Canal Loan Co.	For surplus water passing through Welland Canal, with stipulations.	360 00	360 00	360 00		
Lock No. 15	John Brown	Grist Mill	160 00	160 00	160 00		
Lock No. 20	W. B. Hendershot	Saw Mill	181 00	181 00	181 00		
Lock No. 21	William Beatty	Saw Mill	216 00	216 00	216 00		
Lock No. 23	William Beatty	Wheel grinding Bark	63 60	63 60	63 60		
do	W. H. Ward, now Commercial Bank	Saw and Planeing	50 00	125 00	....	125 00	Insolvent, and water shut off.
do	W. H. Ward, now Commercial Bank	Saw Mill	146 00	365 00	....	365 00	Insolvent. Water shut off.

do	W. H. Ward, assigned to John Brown	Wharf	...	...	...	...	This lease cancelled by letter No. 30,047, 13th Decr., 1859, in consequence of wharf being destroyed through breakage of gates, lock No. 25, by brig "Quebec."
Lock No. 24	John Brown	Wharf	40 00	40 00	20 00	20 00	
do	Brown & Ross, now Wm. A. Chisholm	Grist Mill	130 00	845 00	780 00	65 00	Mill burnt. No water used.
do	Thompson's estate, Band and Hutchinson	Grist Mill	160 00	240 00	160 00	80 00	Mill burnt. No Water used.
Lock No. 25	A. Christy, now Woodward's estate	Grist Mill	160 00	400 00	280 00	120 00	
do	John Brown	Grist Mill	80 00	80 00	80 00		
Lock No. 24	Jacob Keefer, in hands of Assignees	Grist Mill	222 00	333 00	222 00	111 00	
Allanburgh	Wright & Duncan, Jos. Upper	Grist and Carding Mill	320 66	2084 32	...	2084 32	Lessees insolvent, present occupant arranged to pay Rent by instalments.
do	W. H. Merritt, Jr	Saw Mill	87 10	87 10	...	87 10	
do	J. & A. Bowman's estate	Grist Mill	66 00	231 00	...	231 00	Water shut off.
do	William Pennock, occupant D. Williams	Grist Mill	66 00	99 00	99 00		
do	Tucker & Rannie	Saw Mill	600 00	1100 00	800 00	300 00	
Port Robinson	McFarland & Lemon, now J. & J. Abbey	Saw Mill site	150 00	300 00	225 00	75 00	
do	McFarland & Abbey	Dry Dock	79 20	158 40	...	158 40	In hands of Solicitor for collection.
do	Donaldson & McFarland, occupant R. Band	Grist Mill	86 00	479 00	479 00		
op	Robert Band & Co., occupant D. E. McFarland	Grist Mill	206 00	412 00	412 00		
Aqueduct	Dunlop and Seely, occupant W. Thompson	Grist Mill	216 00	216 00	216 00		
do	Dunlop & Seely, occupant W. Joiner	Saw Mill	156 00	312 00	...	312 00	Water shut off. In hands of Solicitor for collection.
do	Dunlop & Seely	Saw Mill	214 00	1177 00	...	1177 00	Lessees left country.
do	E. Seely, occupant M. Betts	Storehouse, &c	20 00	30 00	30 00		
do	M. Cook, occupant M. Betts	Grist Mill	192 00	288 00	288 00		
Merrittville	Alpheus Sherwood, occupant J. Griffith	Wharf Lot	25 00	25 00	...	25 00	In hands of Solicitor for collection.
do	Alp. Eli Mead	Wharf Lot	25 00	62 50	...	62 50	do do do
Junction	John A. Hellems	Wharf Lot	25 00	62 50	...	62 50	do do do
Marksville	John Graybiel	Saw and Grist Mill	160 00	320 00	320 00		
Broad Creek	L. McCallum	Saw Mill	143 00	286 00	214 50	71 50	
Port Maitland	Imlack & Hicks, assignees of H. Imlack & Hicks	Grist Mill	138 00	621 00	...	621 00	Insolvent. Water shut off. In hands of Solicitor for collection.
Dunville	Jacob Turner, occupant R. Chambers	Saw and Grist Mill	180 00	270 00	270 00		
do	Samuel Darling	Grist Mill	86 67	130 00	130 00		
do	Lewis J. Weatherby	Carding Machine	53 34	106 68	106 68		
do	M. Mittleberger, occupant McIndoe & Co	Saw Mill	77 33	386 67	386 67		

WELLAND CANAL.

SCHEDULE No. 4.—Statement shewing the Annual Rents of Water Power leased, &c.—(*Continued.*)

Where situated.	OWNERS.	Description of Machinery.	Yearly Rents.	Amount of Rent with Arrears to 1st July, 1859.	Amount of Payments to 1st Dec., 1859.	Balance due on Rents to 1st Dec., 1859.	REMARKS.
			cts.	cts.	$ cts.	$ cts.	
Dunville............	Chisholm & Minor, now Bank of Upper Canada	Saw Mill	138 67	138 67	....	138 67	Water shut off.
do	A. S. St. John, now T. C. Street......	Grist Mill............................	120 00	900 00	....	900 00	Mill burnt. No water used.
do	John Brown & W. H. Merritt.........	Grist Mill............................	113 00	113 00	113 00		
Haldimand	John Oldfield & A. Nixon.............	Saw Mill............................	237 34	474 67	474 67		
do	J. Clarke & Brothers, now T. C. Street..................................	Saw Mill............................	66 67	66 67	66 67		
do	J. C. Kirkpatrick, formerly Levi Brocklebanks....................	Grist Mill..........	153 34	153 34	153 34		
do	John Belly & R. Bands................	Grist Mill	149 20	373 00	373 00		
Port Colborne.....	John Gordon	Wood Yard...........	25 00	37 50	37 50		
do	A. & K. Schofield, Great Western Railway	Wharf Lot..........................	25 00	50 00	....	50 00	
			8621 08	18179 90	10545 91	7633 99	

(Signed,) S. D. WOODRUFF,
Superintendent,
Welland Canal.

WELLAND CANAL OFFICE,
St. Catherines, 20th December, 1859.

(Signed,) THOMAS ADAMS,
Paymaster & Clerk.

WELLAND CANAL.

No. 5.—Schedule of Lands on the Welland Canal sold to sundry persons, with the Amount of Sales and Interest to 1st December, 1859, Amount paid in 1859, to 1st December, and the Balance remaining due on the 1st December, 1859.

NAME OF PURCHASER.	NUMBER OF LOT.	WHERE SITUATED	QUANTITY.	Amount of Sale.	Amount of Interest to 1st Decr. 1859.	Amount of Sale and Interest to 1st Decr. 1859.	Amount Paid to 1st Decr., 1859.	Balance due, 1st Decr. 1859.	REMARKS.
				$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
James R. Benson, on behalf of Hydraulic Company......	....	Lots below Thorold....	211 A. 1 R. 17 perches..................	8454 25	3341 95	11796 20	2010 85	9785 35	
Municipality of the County of Welland....................	.... Part of Lot No. 27.....	Lands in Wainfleet..... Do. Humberstone. Do. do. ...	10796 Acres, 2048 " 68 "	12912 00	4183 36	17095 36	3309 56	13785 80	
Edward Henderson..............	North parts of Lots Nos. 26, 27 and 28.	3rd Con. Wainfleet.....	416 Acres	832 00	173 90	1005 90	575 06	430 84	
John Hanley....................	Lot marked (F.)........	Port Colborne	....	200 00	....	200 00	....	200 00	
Peter Gibbons....................	Lot........................	Port Colborne	....	200 00	....	200 00	200 00	....	In full.
				22598 25	7699 21	30297 46	6095 47	24201 99	

(Signed,) THOMAS ADAMS,
Paymaster and Clerk.

(Signed,) S. D. WOODRUFF,
Superintendent,
Welland Canal.

WELLAND CANAL.—SCHEDULE No. 6.—Statement shewing the Amount of Fines, and Damages levied, the Amount paid to 1st December, 1859, and the Balance remaining due to the 1st December, 1859.

Year.	Date.	Description of Vessels, &c.	Names of Vessels.	Amount of Fines Levied,	Amount of Damages Levied.	Amount paid to 1st Decr. 1859.	Amount remaining unpaid, 1st Decr. 1859	REMARKS.
				$ cts.	$ cts.	$ cts.	$ cts.	
1857	April 22nd	Schooner	S. H. Lathrop		2560 00		2560 00	In hands of Solicitors for collection.
do	do 30th	Propeller	St. Nicholas	80 00	4800 00		4880 00	Do. do. do.
do	May 27th	Schooner	Wilson		5 00		5 00	
do	November 2nd	Steamer	Quincey	20 00		20 00		
1858	April 30th	Schooner	E. M. Peck		4 00	4 00		
do	do do	do	Mohegan		1953 00		1953 00	In hands of Solicitor for collection.
do	May 3rd	do	Amelia		1246 00		1246 00	Do. do. do.
do	do 20th	Propeller	Lacrosse		1435 00	1428 32	6 68	Deposited with Hon. Receiver General.
do	June 12th	Schooner	Cuyahoga	4 00		4 00		
do	July 20th	Brig	New York	40 00		40 00		
do	October 6th	Schooner	E. T. S. Bernis		10 00	10 00		
do	do 19th	do	Belle Walbridge		4 00	4 00		
do	do 25th	do	New London		30 00	30 00		
do	November 2nd	do	Olivia		10 00	10 00		
do	do 24th	Barque	W. F. Allen		5 00	5 00		
1859	May 5th	Schooner	Joel Robinson	6 00		6 00		
do	do 5th	do	Monticello		20 00	20 00		
do	do 28th	do	A Bradley		40 00	40 00		
do	June 9th	Scow	Star	5 00		5 00		
do	do 16th	Brig	Quebec		2000 00	2000 00		Paid into the Office of Public Works, Quebec.
do	do 25th	Scow	Cinderella	10 00		10 00		
do	do 30th	Schooner	Petrel	10 00	6 80	16 80		
do	do do	do	Persian		30 00	30 00		
do	July 1st	do	W. B. Hibbert		100 00	100 00		
do	do do	Scow	Native		4 20	4 20		
do	do do	Raft & spars	Stevensons		136 00	136 00		
do	do 22nd	Schooner	North Star		60 00	60 00		
do	August 27th	do	Typhoon		100 00	100 00		
1859	September 7th	Raft	Morres		3 50	3 50		
do	do 9th	Schooner	R. Campbell		14 00		14 00	
do	do 10th	Propeller	Banshee		10 00		10 00	
do	October 22nd	Schooner	Amelia		5 00		5 00	
do	do 31st	Propeller	Prairie State		10 00		10 00	
do	November 4th	Schooner	Jessie Ann Hope		10 00	10 00		
do	do 5th	Schooner	Tornado		35 00	35 00		
do	do do	do	Dane		20 00	20 00		
do	do 14th	do	Dispatch		15 00	15 00		
do	do 26th	Propeller	Kentucky		10 00		10 00	
			TOTAL $	175 00	14691 50	4166 82	10699 68	

(Signed,) THOMAS ADAMS,
Paymaster and Clerk.

(Signed,) S. D. WOODRUFF,
Superintendent, Welland Canal.

WELLAND CANAL.

SCHEDULE No. 7.—Approximate Estimate of the probable cost of making the following repairs in maintaining the Works of the WELLAND CANAL, during the season of navigation, for the year 1859, viz. :

	Repairs.	Construction.	TOTALS.
From Port Dalhousie to Thorold, 9½ miles, 25 Locks, 25 Waste Weirs, 10 Swing Bridges, Floating Towing Paths, and Bent Bridges.	$	$	$
8 Spare Gates, Repairs of other Gates and materials, Canal and Bridge repairs, removing bars from bottom	8,020		
Raising and protecting Canal Banks, Culvert through Towing Path below Lock No. 2		1,150	9,170
From Thorold to Allanburgh, 3½ miles, 2 Locks, 1 Waste Weir, 3 Swing Bridges, Culverts, &c.			
Removing Bars in Canal, repairing Mitre Sill and Gates, Allanburgh Lock	1,599		
Raising and strengthening Banks		1,100	2,669
From Allanburgh to Junction, 7½ miles, 2 Locks, Aqueduct, 6 Swing Bridges, Bent do., Floating Tow Paths, &c.			
Repairing and Protecting Bridges, repairing Float Bridges, &c.	2,480		
Raising, facing and strengthening Banks		1,440	3,920
From Junction to Colborne, 7½ miles, 1 Lock, 2 Swing Bridges, Boom Timbers in Rock Cut, &c.			
Repairing Booms in Rock Cut, Lock Gates and Bridges, Setting Snubbing Posts	1,085		1,085
From Junction to Marshville, 16½ miles, 1 Lock, 2 Swing Bridges, 3 Culverts.			
Opening Brown's Ditch Culvert, &c., Marshville Bridge	300		
Raising, facing and strengthening Banks		400	700
From Broad Creek to Port Maitland and Dunnville, 6½ miles, 2 Locks, 3 Swing Bridges, 3 Waste Weirs, Dam, Bent Bridge, &c.			
Repairs to Port Maitland Lock and Sulpher Creek Bridge	774		
Raising, facing and strengthening Banks, Clearing Culverts		1,200	1,794
Probable cost of Repairs of small damages done to Lock Gates and Bridges, &c.	452		452
Raising Piers at Port Colborne, damaged by storm, 26th November, 1859	4,500	5,200	9,700
Repairs and raising Port Maitland East Pier	1,000	1,800	2,800
Providing a pair of Lock Gates for Allanburgh Lock	1,500		1,500
Do. do, set of Gates to suit either the Port Robinson or Aqueduct Locks	3,000		3,000
	24,710	12,290	
Total for Repairs, Gates, Bridges, raising Canal Banks, &c., and constructing Eight Mountain Lock Gates			$37,000

S. D. WOODRUFF,
Superintendent,
Welland Canal

Welland Canal Office,
St. Catherines, 20th December, 1860.

D.

SPECIAL REPORT OF THE SUPERINTENDENT OF THE WELLAND CANAL ON THE TRAFFIC OF 1859.

WELLAND CANAL OFFICE,
ST. CATHERINES, January 16th, 1860.

SIR,—I have the honor to submit the following remarks, in answer to a series of questions, contained in your letter No. 30223 of the 30th ultimo.

1stly, and 2ndly. The number of vessels cleared at Port Colborne and Dalhousie, during each month, with the amount of toll collected at these Ports for the last two years, as shewn in the following tables. In this statement the way tolls are included, but not the collections made at the way Ports, which is furnished in the Appendix to my annual report.

COLLECTED AT PORT COLBORNE, Passing towards Ontario.				COLLECTED AT PORT DALHOUSIE, Passing towards Erie.		
1858.	No. of vessels.	Amount of tolls.		1858. No. of vessels.	Amount of tolls.	
		$	cts.		$	cts.
March	2	3	69	......	... .	...
April	207	22,087	83	221	3,834	71
May	312	26,792	70	314	6,991	82
June	273	19,179	85	295	5,114	39
July	306	23,107	19	295	5,283	32
August	230	14,759	40	241	5,754	38
September	252	17,859	04	262	7,698	39
October	246	18,958	68	215	6,699	49
November	134	9,909	06	121	3,724	98
December	7	561	76	8	42	89
Totals	1,969	153,219	20	1,972	45,144	37
1859.		$	cts.	1859.	$	cts.
March	......	....	...	.....	....	...
April	97	6,068	02	123	1,903	81
May	223	12,935	18	187	4,717	86
June	199	10,489	38	175	3,813	55
July	150	6,511	48	148	3,249	76
August	160	7,212	08	158	4,254	78
September	178	10,251	50	194	6,297	35
October	206	13,644	17	160	5,188	29
November	189	13,492	03	161	4,321	73
December	10	701	79	16	217	52
Totals	1,412	81,305	63	1,322	33,964	65

3rdly. In the foregoing Tables it is shewn, that the deficiency in the tolls, collected last year at Port Colborne, is 47 per cent. and at Port Dalhousie 25 per cent. less, than was collected at these Ports during the year 1858.

This falling off in the tolls is attributable to two causes, viz:—the absence of freight movements during the early part of last year, and the reduction of 25 to 50 per cent. made in the rate of tolls levied.

The articles paying the principal tolls were reduced 50 per cent., viz: wheat and flour.

4thly. The traffic of the Welland Railway comprised 14,713 tons, carried in 32 vessels, with full cargoes, and 5 vessels with parts of cargoes; 5 of them, containing full cargoes, and 4 with parts of cargoes, could not be passed thro' the canal in consequence of their dimensions.

The tolls on this tonnage would have yielded to the Canal $2,896, and the vessels $480—had the same been passed through the Canal. Of this, 1,907 tons were shipped to British ports, and 1,983 tons to the mills at St. Catherines. The balance, 10,823 tons, was sent to American ports.

The monthly traffic on the Railway was as follows, viz:

April,	1	vessel	318	tons,
August,	2	"	928	"
September,	5	"	1,841	"
October,	16	"	6,712	"
November,	13	"	4,914	"
	37	vessels	14,713	tons.

Of the foregoing, it appears to me that 4,208 tons have been diverted from the trade of the Canal, which would have added to its tolls $841 60.

Banking accommodation has been afforded to the shippers of produce over the Welland Railway, and it is believed that its principal traffic has been created through the facilities thus afforded—which traffic, under other circumstances, would most likely have been transported through the American routes.

5thly. On the New York State Canals, the amount of tolls collected last year was $1,812,280 80, or $235,110 50 less than in 1858. Its tonnage is less by about 320,000. Of the freight carried on these Canals, there is only one ton of *through*, to two tons of *way freight*, consequently the reduction in *through freight*, is about 106,000 tons.

On the New York Central Railway, there was carried last year 884,819 tons. Of this, 348,079 tons were *through freight*. There is a decrease in its earnings of $327,653 83 as compared with 1858.

6thly. The tolls on the New York State Canals were reduced in 1858, 33⅓ per cent on agricultural produce, and 50 per cent. on merchandize. Again in 1859 there was a further reduction of 50 per cent. on merchandize and non-enumerated articles, and 33⅓ per cent. on most agricultural products.

The theory advanced by those persons who favor the reduction, is that transit on the canals must be cheapened, to retain the traffic against railroad competition within the State.

In consequence of the great reduction in the tolls upon the New York State Canals, a corresponding reduction in the tolls was made upon the provincial canals during the years 1858 and 1859, to retain the traffic through them.

A protection policy is now being agitated, to impose a toll upon the freight carried on the New York Railways, and also to raise the tolls on most articles passing on the canals.

The adoption of this policy by the New York State Legislature, will enable the tolls on the provincial canals, to be raised sufficiently, to yield a large increase in their revenue, without interfering with the traffic through them.

And, as to the relative advantages of the "American *versus* the Canadian route," I beg leave to submit that were the same facilities afforded to the shippers to Lake Ontario, as are rendered to them at Buffalo for conducting their business, there is not the least doubt but that the trade, by the Canadian route, would be considerably increased.

The advantages possessed by the American routes on Lake Erie, are the ready access of market and cash advances, which are sooner obtained there, than they can be where the property is supplied to Lake Ontario by canal.

This fact has been clearly illustrated during the past season, by the shipment of produce to the Welland Railway, by a forwarding merchant residing and transacting business n Buffalo, who found it to his decided advantage to adopt that route, from the increased facilities afforded thereby.

I have the honor to be,
Sir,
Your obedient servant,
(Signed,) S. D. WOODRUFF.

T. Trudeau, Esq.,
Secretary of Public Works,
Quebec.

E.

REPORT OF THE SUPERINTENDENT OF OTTAWA WORKS, FOR 1859.

Ottawa Works, Supt's. Office,
Ottawa, 23rd December, 1859.

Sir,—I have the honor to acknowledge receipt of your letter, requesting me to report on the state of the Public Works on the Ottawa and other rivers, under my charge.

On the 15th day of September last, I transmitted to the Department, a report on the outlay required during the Fall months, for the maintainance of the Works at the Joachim, Calumet, Mountain and Chats Stations, on the Ottawa, and having since been authorised by the Commissioners to proceed with the repairs, I would state for their information, that they are now in progress, and will be completed in due time.

In my September report, I mentioned that there were certain repairs required on the Madawaska and Gatineau Works, which could be best carried out during the Winter months. The raising of the main dam at the High Falls on the Madawaska river, has been a decided improvement, as it has had the effect of flooding out the most dangerous portion of Ragged Chute, where timber in former years was so much damaged, besides creating a large space for boomage.

HIGH FALLS SLIDE.—(*Madawaska.*)

About 150 feet by 6 feet of the bottom of this slide will have to be re-planked, and being 5 inches thick of hardwood, will require

4500 feet, B.M. @ $30 per M measured in the work.................. $135.00

DAM AT FLAT RAPIDS, (*Madawaka.*)

One of the wings of this Dam must be repaired. I have carefully estimated the cost of the work as follows, viz :—

1200 cubic feet white pine timber, @ 10 cents	$120,00
133 do yds. stone filling, @ 50 cents	66,50
80 lb iron spikes, @ 10 cents	80.00
	$226.50

ARNPRIOR SLIDE.

The foundation of the Slide requires to be partially renewed at a cost of about $100.00

GATINEAU BOOM.

Two of the support piers for this boom were undermined last season of high water and have upset. The bottom of the river at the booming ground is of fine sand, and is so soft that an iron rod can be sunk about twenty feet into it. When the Gatineau river is higher than the Ottawa, (which is often the case,) the strong current shifts the sand from the foundation of the piers, and causes them to turn over. The water at the lowest pitch is from 12 to 18 feet deep, and as the piers have to be built from 24 to 28 feet in height, they are necessarily very expensive, the cost of one being about $800. I would strongly recommend that box piers be substituted for the old ones; they are made 12 feet by 12 feet, by 12 feet, in the shape of a box, and filled with stones; the cost of each will be about $120. I caused a pier of this description to be sunk at the mouth of the Madawaska river, where the water is nearly 50 feet deep, and fastened the remaining boom to it, and I find that it answers the purpose well. When the bottom is sandy, (as it is at the Gatineau boom,) these box piers should always be used for mooring purposes, for, although they are displaced, the stones are held by timbers firmly bolted together, and can be made available in any position.

The cost of three such piers at $120 each, would be	$360.00
Three mooring chains, each 75 feet in length, of inch iron, say $20.00 lb, @ $6 per cent	120.00
	$480.00

The work at the Gatineau should be done in the month of February.

THE HULL SLIDE

Was built many years ago by Mr. Wright, and is now much decayed; by next September, the foundation of a new Slide should be laid, for, although the old one may be patched this winter, and used next running season, it would not be safe to risk it longer. I would therefore respectfully recommend that the sum of $4,000 be included in next year's estimate, to be applied in the re-construction of the Hull Slide.

UNION SUSPENSION BRIDGE, (*Ottawa*,)

Should be repaired as soon as possible.

The following Works are in good order, viz:—

On the river Ottawa.	Portage du Fort Slide. Little Chaudiere do Remoux Boom and Chaudière booms, north and south, Boom at the mouth of the Madawaska, and the line of wooden bridges at the City of Ottawa.
Petewawa River.	Slides at the 1st and 3rd Chutes, do at Bois Dure and Crooked Chutes, Dam at half mile rapid and Boom at mouth of river.
On the Madawaska River.	Long dam at Flat Rapids, Works at Balmer's Island, Calabogie retaining booms, Dams on both sides of Barrett's Chute, Guide Boom at the High Falls, Dams at Ragged Chute, do at the Ducks, do at Boniface Rapid, do on both sides of Bailey's Rapids, Slide at Chain Rapids, and Long retaining Boom at do.

THE CARILLON DAMS

Have been completed, and a new crib channel has been formed, through which the heaviest timber may be passed at low water, with fewer hands than in former years.

THE IMPROVEMENTS ON THE PETEWAWA, (*South Branch.*)

The Contractor is about to commence operations, and being a practical man, all will be ready for business the coming Spring.

THE IMPROVEMENTS ON THE SAGUENAY

Are well advanced, and I am assured by the Inspector, that they will be finished before the next "driving" season. More than a mile of the long slide has been completed, and the foundation of the remaining portion has been laid. The workmanship of this slide is very good, and the materials of which it is constructed have been well selected. The Dams already built have resisted the Spring floods very satisfactorily.

In submitting the above,
I have the honor to be,
Sir,
Your most obedient servant,
(Signed,) HORACE MERRILL,
Supt. of Ottawa Works.

T. TRUDEAU, Esquire,
Secretary of Public Works,
Quebec.

F.

REPORT OF THE SUPERINTENDENT OF THE ST. MAURICE WORKS FOR 1859.

SUPERINTENDENT'S OFFICE, St. MAURICE WORKS,
Three Rivers, December, 1859.

Sir,—In compliance with the instructions of the Honorable Commissioner of Public Works, I have the honor to transmit the following Report, for 1859.

In consequence of the numerous changes in the Department, during the past year, I have deemed it not out of place, to give a brief description of the St. Maurice Works, their extent, management, &c., trusting, that it may afford some useful information, that could not otherwise be so readily obtained.

The St. Maurice Works consist of improvements upon the River, at five Stations, viz:—At the "*Mouth of the River*," at "*Grès Falls*," 18 miles up, at the "*Grande Mère*," 34 miles up, and at "*La Tuque*," 110 miles from the "*mouth*."

Mouth of the River.

The improvements at this Station, consist of a large store-house, 30 by 60 feet, forty-six Piers, and 12,181 lineal feet of Booms, with the necessary chains, plank, &c. This Station is managed, by a Deputy Boom-Master, who has a permanent salary of $432 per-year, and, like all others employed on the works, permanently, or otherwise, boards himself. His duty in the winter, is to take care of the stores, to see that the works receive no damage from the ice, frequently caused by the raising and falling of the water, and to do any other necessary work that may be required of him, by the Department. To save repetition, it may here be remarked, that all the permanent officers—slides and boom-masters—perform these duties at their respective stations. About fourteen men are here employed for 8 or 10 days, stretching the booms in the spring,—5 or 6 until the middle of July, or thereabouts, and 3—two gate-keepers and a watchman—until the first of November. Cost of works at this station, $45,255 20.

Grès Falls.

The improvements here, consist of six Anchor Piers, and 6,000 lineal feet of conducting Booms. There is no permanent officer at this place.

Two men, under the control of the slide-master of Shawenegan, attend to these booms, for about two months, or until the timber is past. There is also an unfinished crib-slide at this station. Cost of works here, $20,077 03.

Shawenegan Falls.

This is the most extensive and important station upon the river. It is managed by two permanent officers, one at $2 per day, and his deputy at $432 per year. The improvements here consist of a slide 600 feet in length, 4 dams 400 feet in length 17 large, and 21 anchor piers, and 17,500 lineal feet of retaining and conducting booms. It employs 18 men for about a month in the spring, and 12 men from that time until the timber is past. Cost of works here, $60,185. 93.

Grande Mère Falls.

At this station, there is a slide 400 feet in length, 8 anchor piers, and 4,500 lineal feet of conducting booms, and is managed by a permanent slide-master at $2 per day. From 8 to 12 men are here employed during the passing of the timber. Cost of works, $27,071. 86.

La Tuque Falls.

The improvements here consist of a long dam, 5 anchor piers and 3,500 feet of retaining booms. In consequence of the limited quantity of timber manufactured above La Tuque during the past two years, this station has not been operated; but as extensive works are now going on in this vicinity, it will be necessary to extend the booms again next spring, and to this end two new anchor-piers are required which will cost, with chains, complete—about $800. Cost of work here, $44,958 15.

Office Three Rivers.

At this place there is the Superintendent and Messenger. The Superintendent performs the duties heretofore performed by the Superintendent, the boom-master, the paymaster and the Clerk; their united salaries being over $4,400 per year. The Messenger takes care of stores, office, cuts wood, &c. His wages are $15 per month.

Construction.

No new works have been made upon the St. Maurice during the past year. The total cost of the improvements hereinbefore mentioned, including certain other charges contained in the account for construction, is $218,101 90.

Repairs.

Repairs during the year 1859 have cost the sum of $543,21. It is impossible to say what the repairs may cost for the coming year, but so far as I am now capable of judging, they will not much exceed the amount paid in 1859.

Maintenance.

The following statement shows the cost of maintenance for the past three years:

Maintenance 1857	$11,870 00
do. 1858	7,648 07
do. 1859	7,234 54

It may here be remarked that the salary of pay-master having heretofore been charged to maintenance, and his office being now abolished, or rather united to that of the Superintendent, a further reduction may be looked for in 1860. I may also add that these considerable reductions, are taking place at a time when the greatest activity prevails in the lumber trade, it having just emerged from a long period of very great depression. A large increase of the business upon the river does not, however, necessarily cause a corresponding increase in the expenditure for maintenance. Since my appointment, now nearly two years, although as few men as possible—compatible with the safety and efficiency of the works—have been employed, yet, I believe that five times the quantity of lumber might have been passed without any considerable addition to the establishment.

Revenues.

The *direct* revenue from the slides and booms for the past four years, has been as follows:

Revenue 1856	$2,163 25
do. 1857	3,397 00
do. 1858	2,395 40
do. 1859	2,121 81

What the indirect revenue in the form of ground-rent and duties has been, I have no means of ascertaining.

During the past year, only *five* parties have operated upon the River, producing 61,168 saw logs, and 1,784 pieces of square timber. This year, no less than *fourteen* establishments are at work, and will, likely, make about 100,000 saw logs and 20,000 pieces of square timber, thereby increasing the direct revenue to about $5,400, and the indirect revenue *in duties alone* to about $29,999 79, to which must be added, the amount realized at the sale of eight limits in September last, $3,026 60, and the ground-rent upon all the old limits, the amount of which I cannot learn at present.

Total revenue four 1860 will probably be very nearly $40,000.

The deficiency in the revenue from the St. Maurice for several years past, may be attributed to several causes. 1st. to the general stagnation of trade; 2nd to the unsatisfactory tenure by which limits have hitherto been held, and lastly to the want of improvements upon the tributaries of this River, without which, the large sum of $ 218,101 already expended, will, I fear, prove an unprofitable investment, although the importance of the Territory in an agricultural point of view—which the St. Maurice works have contributed largely towards opening up—should not be overlooked. At the public sale in September last, all the available limits sold quickly and at high prices; and frequent were the enquiries for timber-berths upon the Vermillion, Mattawan and other tributaries which now remain sealed up and perfectly valueless for the want of improvements;—improvements that have frequently been petitioned for and recommended, and the plans or estimates of which—in the most urgent cases—are already before the Department.

In conclusion, I would remark, that during the past year, although the water rose to the unprecedented height of 23½ feet in the river, the works, generally speaking, operated well and answered the purposes for which they were constructed. I may also add, that all those employed under my Superintendence, have performed their duties with promptitude and ability, giving general satisfaction.

I have the honor, to remain, Sir,
Your most obedient servant,
(Signed,) HENRY R. SYMMES,
Superintendent.

To the Secretary
Department of Public Works,
Quebec.

G.

REPORT OF THE CHIEF ENGINEER ON THE IMPROVEMENTS OF THE RIVER SCUGOG, AND THE "INLAND NAVIGATION OF THE NEWCASTLE DISTRICT."

QUEBEC, 30th November 1859.

TO THE HONORABLE THE COMMISSIONER
OF PUBLIC WORKS.

SIR,—In compliance with instructions relative to the Works, constructed and proposed for the improvement of the River Scugog and "Inland Navigation of the Newcastle District," I recently visited the respective localities, and now have the honor to report in order following:—

Commencing at the village of Lindsay, where, by means of a Lock and Dam, the River Scugog is rendered to some extent navigable, and a line of water communication opened in a south-westerly direction to Port Perry, or within 19 miles of Port Whitby, on Lake Ontario.

The Lock is situated on the north side of the River, and the Dam (240 feet long,) starts from a point about 60 feet below the upper gates, and runs obliquely upwards, to the opposite bank, where there are several mills kept in effective operation, by the head maintained on the reach above.

The present line of road on both sides leads towards the Lock, and crosses it by means of a swing bridge placed over the chamber—the river and raceway from the mills, being crossed by two bridges of an inferior class, and now all but worn out.

The exterior works of both Lock and Dam are formed of timber—the latter is in a passable state of repair, but the Lock throughout is in a very dilapidated condition, especially the south wall, which from its position could not be protected by backing. The exposed parts of the timber are completely rotten, and at some places on the south side for several courses in depth, it has fallen to pieces. As a whole, the Lock is so thoroughly worn out and decayed, that, in my opinion to attempt filling it, may at any moment, if the upper gates are opened, lead to its complete destruction, the result of which, would not only be the drawing down of Lake Scugog, and flooding the adjoining country below, but very likely cause serious damage to other works on the line of navigation.

It therefore appears to me that all attempts to use it, either by way of experiment or otherwise, should in future be strictly prohibited. An order to that effect will be the more readily complied with, as it takes from ten to twelve men to swing one of the gates.

Immediately below the Lock, the river turns so suddenly to the northward, that the line of chamber walls, prolonged downwards, would cut across the channel-way within a distance of 150 feet, and the whole river in 200 feet, and, at a distance of 400 feet, a vessel approaching or leaving, is nearly at right angles to the line of the walls.

Access to the Lock is however rendered still more difficult, by a shoal that extends so far out from the line of the north wall, that within 30 or 40 feet of the gates, a vessel has to change its position fully 30 degrees before it can enter.

These objections may be slightly remedied in locating a new structure; but they cannot be wholly done away with, except by forming a new cut, which it is believed would require a greater outlay, than the extent of trade likely to be benefitted would warrant.

At the time of my visit there was from 4 feet 6 inches to 4 feet 8 inches water on the lower mitre sill of the Lock, and in sounding through the channel-way downwards, for a distance of fully one half of a mile, or near a wharf used by the Port Hope and Lindsay Railway Company, at several places the depth was found barely 4 feet, and for the greater part of the distance water of this depth was exceedingly narrow, winding and intricate. At some places the shoals are of rock; but where less depth than 4 feet was found, in a cross section of 60 feet, the obstructions for the most part consisted of silt, saw dust, slabs, sunken timber and loose stones, overlying a thinly stratified rock, at some places of a like height, but generally a little lower than the mitre sill. At this time the water was said to be at its proper height, although on visiting Bobcaygeon the following day, it was found to be fully 5 inches over the apex of the Dam there, which, without "slash boards," is intended, I believe, to regulate the level. Such being the case, the water may at any time be expected to fall, at least 5 inches below what it was when the soundings were taken, thus leaving barely 3 feet 8 inches on some parts of the rock shoal, and considerably less on the sides of a channel of very limited width.

Thus it will be seen that however necessary the construction of a new lock may be, the improvement of the channel-way below it, is no less essential to the continuance of the navigation, through and between the Lakes, both of which are works that will be unavoidably attended with considerable difficulty, and expense in their execution.

The position of the Lock is such, that the space to be occupied by it, must be enclosed on three sides, by coffer dams of sufficent height to guard against freshets, during the time the works are in progress, while the nature of the foundation as regards leakage is quite uncertain, and the improvement of the channel is confined to the bed of the river, from which there is no means of turning off the water, except by coffer dams—a mode of proceeding that, under the circumstances, is not recommended, as the rock may be loosened by the ordinary process of blasting under water, and both it and other obstructions advantageously removed, by the dredging machine which the Government has in that vicinity.

It is much to be regretted that the situation of the mills and dam, renders it necessary to locate the proposed new lock at the head, instead of the lower end of this shoal, where a more accessible position for it might have been easily selected, and the expense of deepening and widening the channel altogether avoided. Still, however desirable such might be, circumstances prevent the selection of any other site than either that occupied by the present structure, or one in its immediate vicinity.

If the former be adopted it will be necessary to cut through the present "river dam," and construct a longitudinal coffer dam outside of the old structure, the whole length of the Lock pit. This would of course contract the water way, whilst the works were in progress, and on its removal leave the south wall of the new Lock exposed in like manner as the old one has always been.

Both these objections, it is believed, would be met, and the "river dam" left undisturbed, by placing the new Lock, say 10 feet further to the north than the old one, thus allowing the present south wall to remain, first to serve as part of the necessary coffer dam, and afterwards for the protection of the new work, thereby obviating the necessity of forming the rear side of the south wall of dress stone, as originally contemplated. This, although causing considerable additional excavation on the north side, at both the upper and lower entrance, would very little, if any, increase the ultimate cost of the work.

I am therefore of opinion, in the absence of details, that it would be the most judicious course, to place the new structure in the position above indicated.

The unserviceable condition of the old Lock having been from time to time represented, and its reconstruction urged upon the Government, by the inhabitants and other interested parties, a contract was entered into in 1857, for the furnishing of a portion of the necessary materials for that purpose.

On this Contract there has been provided and paid for at assumed rates :—

$324\frac{4}{27}$	Cubic Yards of Dressed Stone,
575	do do rough do
7865	do Feet Pine Timber,
1688	do do Oak, do
18	Knees for Lock Gates, &c.,
50,000	Feet B M Pine Plank,

Amounting in all to the sum of $5842.97.

The stones are still at Bobcaygeon, the place where they were quarried. The planks are piled near the Lock, and the timber lies on the sides of the roads and streets, in the same neighbourhood.

These materials are of course fast deteriorating, and will continue to do so while they remain in their present position.

I may further state that, instead of having the Swing Bridge over the chamber of the Lock as at present, the inhabitants are desirous of having it placed on the line of Lindsay Street, which is from 25 to 30 feet below the lower wing walls of the Lock.

This arrangement would decidedly improve the appearance of the place, and obviate such delays as might otherwise be experienced, when a vessel was locking through ; still, as independent abutments must either be built, or the lower wings extended for that purpose, it would considerably increase the cost of the work.

The advantages that the village and locality would derive from it, might however, be a sufficent inducement for the inhabitants to defray a portion of the additional expense.

The probable cost of completing the works referred to, and for the improvement of the Channel up to Lake Scugog, is estimated as follows :—

Constructing Coffer Dams and unwatering work	$ 3600.00
Removal of old Lock, excavation and embankment	5000.00
Timber and plank in foundation, mitre sills, iron stop-waters, &c.,	6000.00
Masonry of Lock	19200.00
Gates, sluices, &c., complete	2900.00
Swing Bridge,	6000.00
Contingencies	2300.00
Probable Cost	$40.000.00
Deduct for materials provided	5.842.97
	$34157.03
Amount still to be expended, if the Swing Bridge is placed before the Lock, a further outlay will be necessary of	$ 2400.00
Deepening and improving Channel below Lock	14000.00
Improvement of route at several places between Lindsay and Lake Scugog	10000.00
Total	$60557.03

The above Estimate contemplates that the Municipality of Lindsay, or of the Township, will construct the necessary bridges over the river, and race-way from the mills.

In closing this part of the subject, it is deemed proper to state, that the only portions of the works referred to, which may for a time be dispensed with, when the improvements are undertaken, are those from the Lock upwards to Lake Scugog, and that before the others can be placed under contract, in anything like a satisfactory manner, it will be necessary to have a careful survey made, and correct cross sections taken of all that portion of the river passing through the town plot of Lindsay.

Following the course of the river downwards, to Sturgeon Lake, a distance of about 7 miles, the Channel is generally of sufficent depth, with the exception before stated. This section of the route has been much improved within the last few years, by cutting off several of the most prominent points, and forming new cuts at a few of the worst bends, so that vessels can now pass through with comparitive ease, to what they did formerly.

Through Sturgeon Lake, a distance of 12 miles, there is an abundance of water for vessels of a much larger class than any at present, or at all likely to be on this route.

This Lake is supplied principally by the Fenelon River, which enters at its north west end, and forms the outlet of numerous small lakes in the interior, on the shores of which lumbering operations are carried on to a large extent, and the surrounding country at many places is said to be rapidly filling up and improving, by an industrious class of settlers.

When the question of opening a line of communication between Lakes Huron and Ontario, by the route of the Trent and Lake Simcoe, was under consideration (about 30 years ago,) and I believe partly decided on, it was proposed to connect Sturgeon and Cameron Lakes by means of three Locks, placed in the line of a ravine in the vicinity of Fenelon Falls, thence to ascend to Balsam Lake by another Lock.

The scheme as a whole, although generally abandoned, is in part still viewed favorably by a few, who urge that a large extent of rich and fertile country, would be opened up by continuing a line of navigation past the Falls, and that the Government would be more than compensated for the expense of constructing the works, by the increased value of land, &c. Although by no means convinced of the correctness of this view, it is submitted from the pressing manner it has been from time to time urged upon me within the past year.

The neighbourhood of the Falls however, offers great facilities for the erection and efficent working of machinery, especially such as require the power which an abundance of water, with a high head and fall can supply, and its advantages otherwise, for large Lumbering manufactories, are second to only a few places in the Province.

Some years ago large saw mills were erected there, but they had only been a short time in operation, when the whole were accidentally destroyed by fire ; since that casualty no use has been made of the water power.

BOBCAYGEON WORKS, &C.

The Works here are of an extensive and somewhat varied character, consisting of three dams, a slide, a short reach of canal, a swing bridge, a lock, a saw mill basin, and mill race, all of which, have either been constructed or thoroughly repaired since 1855, except the slide, for the re-building of which materials have been provided.

There having been, originally, three natural outlets at the lower end of Sturgeon Lake, the centre one being the smallest and most direct, was selected and improved so as to form what is now the navigable channel.

The others were closed by dams of a sufficent height, to maintain the water at 3 feet 9 inches, on the shoal below Lindsay Lock.

These Dams, so far as could be seen, appeared to be of a good class of work, and from the information furnished on the spot, I am led to believe, that when the repairs were in progress, all the defective timbers observed were taken out, and others put in their places, and that the upper side of all of them was covered with new plank, of sufficent length, to reach from top to bottom, and, further, that these covering plank were properly puddled at the top, and the whole afterwards well backed up and loaded to a good depth with gravel.

At all events they stand well, and are as staunch as could be expected, or the circumstances require.

The Canal is 33 feet wide, and abont 900 feet long, including the Lock, 500 feet of it is lined with timber and plank, to prevent the water escaping by the numerous and large fissures in the rock through which it is formed.

At a distance of 100 feet above the Lock, a roadway is continued across the Canal, by means of a swing bridge, supported on abutments of dressed stone, starting from the surface of the rock. The bridge is constructed in a manner similar to those on the other Provincial Canals.

The Lock is 33 feet wide, and 133 feet long between the gates, and has a lift of 6 feet ; both the upper and lower mitre sills are placed on the same level, and so as to be 5 feet under the assumed low water mark.

The wings, recesses, and piers of both ends are of cut stone, and the face of the chamber walls consists of what is termed "hammer dressed work."

The whole of the masonry is of a good class, well-dressed, and laid, I believe, in hydraulic mortar.

The upper and lower gates are of the same length, and constructed "on the solid principle" of pine timber, and are opened and closed by means of balance beams.

On the south side of the Lock, and at a distance of about 70 feet below it, is a small grist mill, to which a raceway of masonry has been built, from a point 10 feet above the upper recess, the rear part of the Lock wall forming one side, and a separate wall the other. The bottom is well secured with concrete timber and plank, and the top closely covered. The whole forming a conduit for the water, that will compare favorably with the greater number of works of its kind.

On the north side of the Lock is a saw mill, for the convenience of which, a "saw log basin" has been formed of a like class of masonry as the chamber walls of the Lock. This basin is also the head race to the mill, and has its entrance from the Canal about 10 feet above the upper recess.

From the above brief description of the works, it will be evident they are generally of a good class. There are, however, some serious drawbacks to the usefulness of those directly connected with the navigation, arising from,

1st. The all but inaccessibleness of the Lock at its lower entrance.

2nd. The frequent obstructions experienced in approaching it from above, &c., each of which will claim attention in its order.

1st. The Lock being situated immediately above a sudden bend of the channel-way, the sides of which consist of large blocks of stone, angular and pointed, and the space between them so extremely narrow, that a vessel in passing, is liable to be injured under any circumstances, while the danger is greatly increased, and the difficulty rendered all but, and frequently altogether insurmountable, by the strong current that sweeps directly across the channel, from the tail-race of the saw mill above referred to, at a point within 75 feet of the lower end of the Lock, and near the narrowest, most crooked, and intricate part of the outlet; and moreover, slabs, edgings and saw dust from the mill, very often complete the entire blocking up of the passage.

At the time of my visit there, in the fall of 1858, a steamer of very light draught was delayed for a considerable time, but on the saw mill having been stopped, the vessel succeeded, by a good pressure of steam, in ploughing through the slabs, &c.

Last fall, while I was there, the steamer Ogema, succeeded with great difficulty in passing downwards through this channel, but was quite unable to return.

This was alleged by some, to be caused wholly by the waste of water at Buckhorn, lowering the lakes above; but an examination of the various matters connected therewith, fully convinced me that, it was only one of the many causes.

The channel can of course, be much improved by increasing its width and depth, but, unless some stringent regulation is enforced for its future protection, it would again, in a short time, be in an equally unserviceable state as at present.

The proprietor of the mills, however, assured me that, in future, no slabs or edgings would be allowed to get into the channel, still, with all due respect to such promises, it must be admitted, that what has been done, may, under similar circumstances be done again, while the propriety of allowing the efficiency of any Public Work, to be wholly dependent on the forbearance of any private individual, seems exceedingly questionable.

In order therefore to prevent such occurrences in future, and remedy some of the evils complained of, it is proposed to place a strong RACK across the tail race of the mill, at a short distance above where it enters the channel, and, at a few feet beyond the outlet, to moor a strong boom made of two depths or more of heavy timber,—the latter it is believed would give the current a more down ward direction, while the rack would effectually keep the channel clear of everything except sawdust, which although found to be a great nuisance as it enters the lock, and settling there prevents the gates from working freely, cannot be well got rid of, without incurring the expense of collecting it and carting it away, or turning the tail race to the other side of the island, which would really be the better course, were it not that a few inches of back water would at times be likely to diminish the head.

The works above proposed together with widening the channel at two points, (one on the north and the other on the south side), removing loose stone from the sides and bottom, clearing out sunken timber, slabs &c, could be done for about $1,000 00; still with a larger sum judiciously expended, the entrance could be still further improved.

2ndly. The width of the cut above the lock as already stated being 33 feet, does not admit of two vessels passing each other in it, which, in the absence of any regulations as to where one or other shall tie up, has on several occasions led to unnecessary squabbles, among those in charge of them.

But the greatest cause of annoyance and delay arises from the channel being obstructed by sawlogs, which, I was informed, are often brought down in rafs, and separated above the gates, and some times in the lock, the "traverses" and "withes" that connected them, being allowed to sink or float according to circumstances, the latter being the exception, this was found to be the case on the two occasions that I visited the place. Both times the canal was obstructed by saw logs, and sunken traverses of heavy green timber had to be grappled up from the bottom of the lock, before the gates could be opened or closed, while the "withes," it is said, frequently get so twisted round the valves, as to render them unserviceable.

I was further informed that the sawlogs used during winter, are hauled across the swing bridge, and there dumped into the canal, causing large quantities of bark to accumulate at and in the lock.

These liberties taken with the navigation, clearly show that it is looked upon as secondary to the milling interest of the place, a conclusion most likely to have been brought about, by the circumstances of the original works having been allowed to remain so long in an unserviceable condition, together with the fact of the whole adjoining property, being owned by private individuals.

The improvements in the first instance having been carried on under the management of local commissioners, who, from all I have been able to learn, acquired no other title to the land through which the canal passes, than verbal permission to that effect from the proprietor, it has led to great dissatisfaction and interference with the works, as well as much additional expense in their construction, as the parties now owning the lands, claim up to the water's edge. Mr. Boyd, the proprietor of the mills, is understood to own the whole on both sides of the lock and canal, up to the swing bridge, and to have a lease for twenty one years of all on the north side above that point; the land on the south side is also said to be private property.

The whole is however occupied on both sides up to the brink of the cut, with lumber piled to a considerable height, which when removed is placed directly into a vessel moored in the canal, thus affording no opportunity whatever for another to pass.

Thence, there being no room or place, in the vicinity of the village, for vessels landing or receiving freight, other than those in the employment of the mill owner, parties insist on doing it at the lock, where contrary to all known regulations elsewhere, merchandize, hay, wood, gravel and building materials have been landed. In vindication of this it is said, that the works being public property, the public ought to have some accommodation from them. It is further stated that emigrants for the back townships (which are fast settling up) on arriving at that point, are, for similar reasons, put to great inconvenience and expense, with their baggage. It is therefore urged by the inhabitants that a public wharf and store house, are not only required, but that they should be provided by the government.

From what has been said, it will be evident that, in order to keep this route open for navigable purposes, it should be placed under a similar class of regulations, as those in force on the other provincial canals, especially that the 11h section of them relating to obstructing Public Works should be strictly enforced, with such additions as the following:—

1st. That no scow, barge, or other vessel should be allowed to take on or deliver freight, while in either the Lock or the Canal, except that passenger steamers may have the privilege of taking in fuel, landing or taking on freight, when in the Canal, provided that no longer time is occupied in so doing, than one half hour, and no detention is caused thereby to any other vessel.

2nd. That, in cases of two vessels approaching the Lock from opposite directions, about the same time, one of them should stop or tie up opposite a fixed point, outside of the entrance, until the other has passed through.

3rd. That in cases where logs are taken down to the saw mill in operation on the north side of the Lock, the rafts of which they form a part, must be separated in the Bay above the entrance, and no more than two logs abreast of each other shall be sent down, or allowed to accumulate in any part of the Canal at one time, neither shall there be in the whole Canal, at any one time, more logs than the basin built for their reception can accommodate;—but especially that no floats, "traverses" or "withes" shall be allowed to enter the Canal, whether separate or connected with the logs intended for the saw mill, and further that any bark, slabs, edgings, or other obstructions found in the Lock or approaches to it, known to have emanated from the mill or handling of the logs for it, shall be removed at the mill owners expense, who shall in addition be fined the sum of for each time such an occurrence takes place.—

The Lock Keeper is the only person in any way connected with the management of the works at this place. He appeared active and intelligent, but his health was scarcely equal to the efficient performance of such duties as devolve upon a person acting in that capacity.

He stated that he had repeatedly, within the past two years, applied by letter to the department, for instructions relative to his duties, stating the difficulties he had to contend with, &c., but had received no answer.

These troubles were then enumerated in detail, but as they relate principally to matters already referred to, it is unnecessary to repeat them here.

It however appears to me that a Lock Keeper at a station so remote, being allowed to act without instructions either gives him too much power, or, as interested parties say, leaves him none whatever. I therefore consider his duties should be sufficiently defined, to enable him to act promptly and in such a way that his authority will be respected.

Having thus pointed out the principal matters requiring attention at this place, it is proper to state that the following mentioned works of maintenance are also necessary, namely :—

Clearing out the chamber of the Lock, adjusting the lower gates, which are at present difficult to open, or close, and raising the Swing Bridge so as to rest more on the pivot, furnishing and attaching to it a travelling crab, for the purpose of moving it, all of which would cost about $350.

The slide of the upper dams should be also reconstructed;—for this purpose the greater portion of the necessary materials have been provided, delivered and paid for. The probable cost of what is still required, together with the workmanship, will amount to $600 00.

It may further be said, that the great difficulty experienced in unwatering the Lock pit when the works were in progress of construction, at this place, had rendered necessary a large outfit, consisting of a portable engine (8 horse power) 4–12 inch pumps, suction hose and other articles, which were used for part of the first season, but found insufficient for the purpose. Consequently for the second years operations additional power was provided, consisting of an engine of 18 horse power, and more efficient pumping apparatus, which when worked at a high speed, effectually accomplished the object.

The whole of this machinery still remains at Bobcaygeon, principally under cover of a temporary shed erected for the purpose.

In the event of its being allowed to remain there much longer, I consider more care should be taken of the engines, both of which are of a good class, well got up and finished.

The Dredging machine used in improving the Channel of the Scugog River, is also at Bobcaygeon, where it lies partially sunk. The engine and machinery is the property of the Department, but the scow or vessel on which it is fitted up, is claimed by the Contractor.

It is however very desirable to have the question of ownership of the hull decided, before the machinery is further injured by being in the water.

BUCKHORN RAPIDS.

The principal works at this place are a Dam, a road bridge, two flumes, a slide for the passing of lumber, with guide piers and booms leading thereto.

The Bridge is a new structure about 642 feet long, built over and framed into the dam, of which it may be considered part; it is well and substantially executed, of good materials, and as a whole will compare favourably with most erections of its kind.

It forms the only means of a land communication with the northern Townships, for a distance of at least 15 miles on either side of it, where lumbering operations are at several places carried on to a large extent, and by it the slide, flumes and piers, are at all times rendered accessible.

Within the past few years the greater portion of the dam has been rebuilt, and the remainder of it is said to have been thoroughly repaired, and care taken in both cases to render it staunch; still the precautions adopted appear not to have been quite successful, there being a considerable body of water passing through under it.

This may however be attributed more to the foundation than to any defect in the work—the bed of the River at the place consisting partly of loose granite boulders and rock, in which there are many large deep fissures running in every possible direction, some of which no doubt extend a long way above the dam and others below it.

These the Contractor informed me he had endeavoured to staunch, where they appeared within the line of his temporary dam, and that he had succeeded in doing so with many. Still it is quite possible that some of them might not be visible there, although open higher up stream.

Having carefully examined this work on two different occasions, I am favourably impressed with the principal part of all that could be seen of it, and judging from circumstances together with the representations made to me on the spot, there appears no reason to doubt, but that the portion of it under water was made equally substantial. Still the appearance of the water surface having induced me to make a close examination of the apron, I am led to believe that it might be made tighter, by an additional covering of gravel and brush, at a few places where the greatest quantity of water seemed to escape, and therefore recommend the sum of $500 be applied to that purpose.

This dam being intended to maintain Buckhorn, Mud and Pigeon Lakes, and the river connecting them, at a navigable height, when any deficiency of water is experienced by vessels, the cause is at once attributed to the insufficiency of the dams, and the leakage at it, is pointed to as a proof of this being the case.

It should however be borne in mind, that the leakage complained of is not equal to one third or at the outside one half of the volume of water, that is constantly passing at Bobcaygeon, shewing clearly that there must be other ways of it escaping than directly under the Dam.

A fact that no one can fail to be convinced of, who in passing along the Bridge, has observed a rickety old flume connected with a small saw-mill, situated a short distance below on the north side of the river, that there is there more leakage and water wasted, than escapes in the whole length of the Dam.

There is no objection whatever to the mill, or even one triple its capacity being supplied with an abundance of water through the opening left for that purpose; but there are certainly many decided objections to the unnecessary waste of water, that takes place through the works leading to it; so much so, that in my opinion it is quite useless to attempt keeping the line of navigation, above, in anything like a passable state, during the early part of the fall, if the owner of this mill cannot be compelled to put his flume into a proper condition.

I am not aware of the nature of his claim or right to the privilege, but whatever that may be, no private interest should be permitted to interfere so much with the utility of an extensive Public Work.

It therefore seems proper that the owner should be notified to the effect, that, unless the works leading to his mill are, within a reasonable time, placed in such a state of repair as not to consume more water than is required for his milling operations, the water will be shut off at the entrance to his flume.

On these matters having been attended to, there is every reason to believe that no deficiency of water will be experienced at any season, provided that such arrangements are made, as will prevent in future the careless or designing from interfering with the works.

The necessity of this will be evident from the fact, that on several occasions the stop logs have been cut out of the flume, at one time for the purpose of lowering the water in the Lakes above, and at another time with a view of sending down a volume, sufficient to carry rafts over some of the shoals below,—while on another occasion a large quantity of sawlogs, were sent down towards the Dam, without any one feeling interest enough in the matter to remove the stop logs from the slide, so as to allow the rafts to pass,—the result of which was the destruction of a large portion of the guide boom, and imminent danger to other parts of the works.

It thus shews that at certain seasons without some one on the spot having control, no dependance can be placed on either the maintenance of the water or the security of the works themselves.

Whilst in that neighbourhood my attention was repeatedly drawn by interested parties, to the difficulty and danger that exists in timber passing immediately below the slide there, arising from the extent of shoal water, and set of the current below the dam, at what is called the "running season." Although I have not seen the water at the pitch referred to, still the appearance of the place seems to bear out the representations made. It therefore appears to me that the only way of remedying the evils complained of, is to extend the pier from 150 feet to 200 feet further down stream. This would cost about $2500.

Having thus drawn attention to the position and condition of these isolated works, undertaken with a view of creating the means of communication between some of the Island Townships in their vicinity;—it is deemed unnecessary to say more than that if these improvements possess, even a moderate share of the importance which has been claimed for them, they should undoubtedly be placed under such regulations, and management, as will have a tendency to render them more serviceable and efficient, and with that object in view I beg respectfully to submit the foregoing suggestions.

I have the honor to be,
Sir,
Your obedient servant,
(Signed) JOHN PAGE,
E., C. Public Works.

H.

REPORT OF THE CHIEF ENGINEER ON THE DEEPENING OF THE ST LAWRENCE CANALS.

QUEBEC, January 23rd, 1860.

TO THE SECRETARY OF PUBLIC WORKS,

SIR,—Agreeably to instructions, I have the honor to submit the accompanying estimate, of the probable expense of increasing the draught of water, in the St. Lawrence Canals, to ten feet six inches on the mitre sills of the Locks, &c., as called for by an *Address* from the *Legislative Assembly*, dated 16th March, 1859, to His *Excellency* the *Governor General.*

The address, although referring to the Cornwall, Beauharnois and Lachine Canals, only, is understood comprehensively to mean the adaptation of the present navigable route, of the upper St. Lawrence, to a larger or more deeply loaded class of vessels, than have hitherto been able to pass.

It is therefore deemed pertinent to remark, that although many large vessels, in descending the River, pass outside of the Williamsburg sections of the Canals, still all loaded freight vessels, must pass through them in ascending; hence, unless similar improvements are carried out there, the navigation will still be limited to its present capacity.

For this reason, it has been considered proper to submit an estimate of the probable outlay required to increase the draught of water throughout, so that the whole may at once be within reach of the Department.

It may further be said, that the Welland Canal has a draught of "ten" feet water only, instead of "ten feet six inches" as intimated; the estimates are, however, based on obtaining the latter depth on the mitre sills of the Locks, and 11½ feet in the reaches between them.

With a view of placing all available information in as convenient and condensed a form as possible, copious notes have been appended to the respective Estimates, explanatory of the circumstances, nature, and extent of the works proposed to be done, instead of submitting a long, and otherwise unavoidably monotonous Report.

Attention having been drawn, both to details, and general principles in the manner above stated, I may add that the Estimates have been prepared, solely with a view to increase the draught of water, avoiding the introduction of all items of expenditure unconnected with that object,—except in a few cases, where it is indispensable that works should be proceeded with, at the same time when those directly connected with the deepening are in progress.

It may further be stated, that there is good reason to believe, that the re-building and alterations of all the structures referred to in the Estimates, can be effected in the winter and spring, with little or no interruption to the navigation, provided they are placed in the hands of energetic contractors, in sufficient time to admit of materials being provided, and arrangements made for that purpose, during the summer previous ; and at places where the works consist of dredging, or of forming embankments, they can, of course, be proceeded with in summer, with little or no inconvenience.

The following abstract of the Estimates, shows the approximate cost of effecting the object, viz :—

Cornwall Canal,	Total	$250,000 00
Beauharnois do,	do	150,000 00
Lachine do,	do	446,000 00
Williamsburg Canals,	do	182,000 00
Amount		$1,028,000 00

Respectfully submitted,
by your obedient servant,
(Signed,) JOHN PAGE,
C. E. P. Works

CORNWALL CANAL.

Estimate of the probable cost of deepening the Cornwall Canal, to a depth of 10½ feet on the Mitre-sills of the Locks, and 11½ feet in the levels between them.

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	$ cts.	
A.—Deepening upper entrance and part of canal above Grand lock, distance 4.750 feet, width 100 feet, mean cutting 1.75=30,787 cubic yds., at 55 cts.	....	16,932 85	A.—At low stages of the river, there is barely 9½ feet water in this portion of the Canal, while the entrance, being in comparatively still water, admits of no means of increasing the draught, except by lowering the bottom, both above, and in the level below the Lock. The material is of a nature difficult to remove.
B.—Taking down and re-building Grand Lock, construction and removal of coffer-dams, and unwatering work	3,000 00		B.—There is frequently not more, and occasionally less than 9 feet water, on the upper mitre sill, and there being no other way of increasing it, than by taking up and relaying the recess platform and sills, to suit the required depth, and the Lock, consisting of masonry, opposite the gates, and at the wings only, it is proposed to take down, and rebuild the whole, in a permanent manner.
Taking down and re-building 1,900 c. yds. of masonry, at $4 50	8,550 00		
C.—Removing present chamber walls and foundation	3,500 00		C.—The present chamber walls, being of crib-work, and much decayed, when rebuilt, should be constructed of masonry, as provided for in the Estimate.
D.—Furnishing materials, laying new foundations, mitre-sills, &c	10,500 00		D.—It is believed that new materials will have to be furnished for the greater portion of the foundation.
Chamber walls and additional masonry, at both ends of Lock, 2,150 cubic yds., at $8 50	18,275 00		
Excavation and embankment and puddle in rear of walls, foundation, &c	3,230 00		
Removing, altering and replacing Lock-gates, and contingencies	3,745 00	50,800 00	
Securing, and alterations, to head race, (in addition to other appropriations)	....	1,500 00	
E.—Deepening level between guard lock and Lock No. 20, distance 5 3-5 miles, width 100 feet, depth 1.75=191,664, at 33 cts	....	63,242 52	E.—Parts of this level, although below bottom, at other places is much silted up, so that it is believed, an average cutting of 1 foot, 9 inches, will be necessary, to give it the requisite depth, a large part of which is hard materials.
F.—*Milleroche and Moulinette culverts.* Removing puddling over arches and part of the sides, and substituting concrete, each $950	....	1,900 00	F.—It is proposed to remove the present puddling, from the crown of the arches, and for a distance of, from 10 to 12 feet, on both sides, and afterwards, form a new covering fo concrete.
LOCK NO. 20.			
G.—Lowering upper mitre-sill segments, recess platform and, securing walls, &c	1,850 00		G.—The Estimate contemplates raising the water level, between Locks No. 20 and 19, six inches, sinking the mitre sill and platform, at the tail of Lock No. 20, one foot, which is all the chamber floor will admit of. The prism of the Canal to be sunk, to suit that depth. To rebuild the Lock, would cost, at least, $40,000.
Do. lower recess platform, apron, and underpinning walls	4,600 00		
Unwatering work during its progress	600 00		
Removing and replacing Lock Gates	700 00	7,750 00	
Carried over	....	142,125 37	

CORNWALL CANAL.—Estimate for deepening.—*Continued.*

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	$ cts.	
Carried forward................	....	142,125 37	
Deepening prism of canal, between Locks No. 20 and 19, distance 8316 feet, width 100 feet, depth 1.25=38,500 c. yds., at 26 cts.............................	10,010 50		
Raising banks, additional walling, &c..	1,350 00		
H.—Damages for raising water on mill property	3,000 00		H.—By increasing the height of the level, six inches, will, to a like extent, diminish the head and fall, at the mills, thus rendering the power leased less effective; should it be found possible to avoid this, without rebuilding the Lock, the sum set down for damages, and raising the banks, will meet the expense of deepening the prism of the Canal.
Alterations to culvert....................	840 00		
Land damages and contingencies....	1,800 00	17,000 00	
LOCK No. 19.			
I.—Raising Lock Walls with masonry..	3,000 00		I.—If it is found indispensable to raise the level above this Lock, as well as lower the bottom, it will be necessary to raise the Lock walls, as well as lower the upper mitre sill.
Lowering upper mitre sill, recess platform, &c..	1,850 00		
Raising banks on both sides of lock.	350 00		
Removing, altering and replacing lock gates..	700 00		
Altering waste weir and raceway leading to it..................................	850 00	6,750 00	
Raising Banks between Locks Nos. 19 and 18, distance 7656 feet=18500 c. yds. at 24 cts..............................	4,400 00		
Additional slope wall, &c................	2,600 00		
Land damages and contingencies....	1,200 00	8,200 00	
LOCK No. 18.			
K.—Taking up and relaying lower mitre sills, recess platform, and apron, securing walls, &c............................	4,600 00		K.—There being a large amount of water power leased on the level below this Lock, it is proposed to raise the water only six inches, and deepen the reach, one foot three inches, so as to interfere as little as possible with the Lessees. This to be effected in a similar manner as at Lock, No. 20.
Unwatering work while in progress	600 00		
Raising lock walls with masonry....	3,000 00		
Removing, altering and repairing Lock Gates....................................	700 00		
Raising banks on both sides of lock.	350 00		
Alterations to water weir and raceway.	850 00		
Securing culvert and foundations of swing bridge.............................	1,200 00		
Contingencies..................................	1,300 00	12,600 00	
Raising and strengthening banks, additional slope, walling, &c	2,500 00		
Deepening prism of canal, distance 6675 feet, width 100 feet, depth 1.25=30,903, c. yds., at 28 cts...................	8,652 84		
L.—Towards alterations to head gates to mill property......................	5,000 00	16,152 00	L.—Should it be considered proper to maintain the level at its present height, this sum can be applied, towards taking up and relaying the chamber floors, &c.
LOCK No. 17.			
M.—Covering upper mitre sill, platform Legments, &c, and securing walls	1,850 00		M.—The level above this Lock being subject to frequent variations, caused by the sudden stoppage, or starting of the mills, renders it necessary to raise the Lock walls, as well as lower the upper mitre sill, further
Taking out, altering and repairing gates......	700 00		
Raising lock walls with masonry...	3,000 00		
Carried over................	5,550 00	202,828 21	

CORNWALL CANAL.—Estimate for deepening.—*Continued.*

Situation of Work.	Amounts.	Totals.	REMARKS.
	$ cts.	$ cts.	
Carried forward	5,550 00	202,828 22	
Raising Banks on both sides of Lock and between Locks Nos. 17 and 16	650 00		When all the water power leased is brought into use, a regulating weir, will be indispensable.
Additional walling, &c	400 00		
LOCK No. 17.			
N.—Raising Lock walls with masonry	3,000 00		N.—The level above and below this Lock, being raised, it will only be necessary to raise the walls, banks, and gates.
Raising Banks on both sides of Lock	350 00		
Removing, altering and replacing Gates	700 00		
Raising between Lock No. 16 and 15	300 00		
Additional slope walling	400 00		
		4,750 00	
LOCK No. 15.			
O.—Construction and removal of Coffer Dams and unwatering work	3,600 00		O.—In the month of October, 1859, the water on the lower mitre sill, of this, the outlet Lock, varied from 9 feet, 1 inch, to 9 feet, 6 inches, and during other months, in that, and subsequent years of low water, it varied from 9 feet 8 inches, to 9 feet, 10 inches; it is therefore proposed to take up the lower recess platform apron, and mitre sill, and relay them one foot lower, or as much more, as circumstances will admit of, and thus obtain the requisite draught of water, without rebuilding the Lock.
Taking up and relaying lower mitre sill, recess, platform and apron, and securing foundation of walls	5,000 00		
Raising Lock Wall with masonry...	3,000 00		
Removing, altering and replacing Lock Gates	700 00		
Raising Banks on both sides of Lock	1,400 00	13,700 00	
Total	....	227,878 21	
Add for Contingencies and Superintendence	....	22,121 79	
Total	....	250,000 00	

(Signed,) JOHN PAGE,
C. E. P. Works

Quebec, 23rd January, 1860.

BEAUHARNOIS CANAL.

ESTIMATE of the probable cost of deepening the Beauharnois Canal to 10½ feet on the Mitre-sills of the Locks, and to 11½ feet in the levels between them.

Situation of Work.	Amounts.	Totals.	REMARKS.
	$ cts.	$ cts.	
A.—Raising banks on both sides of canal, from Lock No. 14 to 13, distance 31,600 feet=93,628 c. yds., at 25 cts...	23,407 00		A.—Since the dam at the head of this Canal was constructed, there has been, at all seasons, a sufficent head of water on the upper Gates of the Guard Lock, (No. 14,) to admit of the level below being raised, so as to give a depth of 10½ feet on the lower mitre sill; it is therefore proposed to raise the water in this, as well as all other levels of the Canal. About one-half of the material required for raising the banks, can be obtained from Government land, for the balance, will have to be purchased.
Additional slope walling, 21,066 lin. yards..........	8,426 40		
Forming a drain through the church property, 2640 feet long, average cutting, 6 feet, 29,000, at 18 cts..........	5,220 00		
Alterations to waste weirs and ferry recesses..........	1,600 00		
Do to regulating weir and Bridge at St. Timothy..........	2,000 00		
Purchase of land and damages..........	2,746 60		
		43,400 00	
LOCK No. 13.			
B.—Raising lock walls with masonry, swing bridge, &c..........	4,200 00		B.—The Swing Bridge over the Lock, and approaches to it, must be raised, and also the embankment and walls of the waste weir.
Removing, altering and replacing gates..........	700 00		
Raising banks on both sides of lock.	350 00		
Alterations to waste weir and raceway leading to and from the same......	1,400 00		
		6,650 00	
C.—Raising Banks on both sides, between Locks Nos. 13 and 12, distance 10,000 feet = 29,628 cubic yards, at 25 cents..........	7,407 00		C.—Land for the purpose of supplying embankment, must be purchased.
Additional slope walling, 6,666 lineal yards..........	2,666 40		
Purchase of land and damages......	1,926 60		
		12,000 00	
LOCK No. 12.			
Raising Lock walls, Bridge, &c......	4,200 00		
Raising Banks on both sides of lock	350 00		
Removing, altering and replacing gates..........	700 00		
Alterations to waste weir and raceway..........	1,600 00		
		6,850 00	
Raising Banks on both sides of canal, between Locks No. 12 and 11, distance 5,220 = feet, 15,464 cubic yards, at 25 cents..........	3,866 00		
Additional slope walling, 3,460 lineal yards..........	1,384 00		
Purchase of land and damages......	1,250 00		
		6,500 00	
LOCK No. 11.			
Raising walls of lock bridge, altering lock gates, waste weir, &c., same as at No. 12..........	....	6,850 00	
Raising banks on both sides of canal, between locks Nos. 11 and 10, distance 5,100 feet = 14,000 cub. yds., at 25 cts.	3,500 00		
Additional slope walling, 3,400 lin yds..........	1,360 00		
Purchase of land and damages........	1,250 00		
		6,110 00	
LOCK No. 10.			
Raising walls of lock bridge, altering lock gates, waste weir, &c., &c., same as at No. 12..........	....	6,850 00	
Carried over..........	....	95,210 00	

BEAUHARNOIS CANAL.—Estimate of deepening.—*Continued.*

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	cts.	
Carried forward...............	....	95,210 00	
Raising banks between locks 10 and 9, 1100 feet=3,850 cubic yds., at 25 cts.	814 75		
Additional walling, 733 lin. yds., & c.	350 00		
Purchase of land and damage	301 10		
		1,465 85	
LOCKS Nos. 9, 8 & 7.			
Raising walls of locks, bridges, altering gates, waste weir, &c., &c., each same as No. 12........................	....	20,550 00	
Raising Banks on both sides of Canal, between Locks Nos. 9 and 8, 1,225 feet, 8 and 7, 785 feet, and between Nos. 7 and 6, 700feet,=10,000 cubic yards, at 25 cents	2,500 00		
Additional walling, & c	1,000 00		
Purchase of land and damages......	750 00		
		4,250 00	
LOCK No. 6.			
D.—Construction and removal of coffer dams, and unwatering work......	4,000 00		D.—During the fall months, at low stages of the river, there is frequently not more than 10 feet water on the lower mitre sill of this Lock, and in October, 1854, there was only 9 feet, 10 inches, for the first half, and 9 feet, 6 inches, for the last half of the month. It is, however, believed that this can be remedied, by taking up the recess platform and apron, and relaying them one foot below their present level.
Taking up and relaying lower mitre sill, recess platform and apron, and securing foundation of walls	5,000 00		
Raising lock walls with masonry.	3,400 00		
Removing, altering and replacing gates	700 00		
Raising and protecting banks on both sides of lock, &c., &c...............	1,400 00	14,500 00	
		135,975 85	
Add for Contingencies, Superintendence, &c..................................	....	14,024 15	
Total................................	....	150,000 00	

(Signed,) JOHN PAGE,

C. E. P. Works.

Quebec, 23rd January, 1860.

LACHINE CANAL.

ESTIMATE of the probable cost of deepening the Lachine Canal, so as to have 10½ feet water on the Mitre-sills of the Locks, and 11½ feet in the levels between them.

Situation of Work.	Amounts.	Totals.	REMARKS.
	$ cts.	$ cts.	
A.—Deepening channel way through basin at Lachine, at different places, to 11½ at lowest known stages of the river 11,500 cubic yards, at $3,25.......	....	37,375 00	A.—It is believed that this could be done without any interruption to the navigation, by the ordinary process of blasting and loosening the rock under water, at less expense than to attempt laying the basin dry, means of coffer dams, and pumping.
GUARD LOCK No. 5.			
Construction of coffer dams at head of lock at waste weir and old canal, their removal, and unwatering works...	3,500 00		B.—Although the depth of water in the Basin, at Lachine, has been increased several inches, by the extension of the south pier, there is occasionally not more than 10 feet on the upper mitre sill of the guard lock; it is therefore proposed to lower the sill, at least, one foot, and, with a view to maintaining the level below the lock at its present height, it is contemplated to deepen the chamber floor of the lock, which consists of a flat stratum of rock, and to take up and relay the lower recess platform, apron and mitre sills, at a height suited to the proposed depth. From the large extent of water power leased at Montreal and the intermediate Locks, and the volume of water that must necessarily enter the Canal at Lachine, for its supply, it is believed indispensable, that a head of not less than one foot, should be made in the height of the level below the lock.
Taking up mitre sills, recess platforms, &c., and relaying them, lowering chamber floor, securing lock mills, &c.	9,500 00	13,000 00	
ROCK CUT.			
C.—Increasing width of cut to 100 feet, as low as present bottom, 48,500 cubic yards, at $1 25......................	60,625 00		C.—The widening of this cut, although not strictly coming under the head of increasing the draught of water in the canal, is of very little less importance to the interests of the navigation. The "cut" is about three-fourths of a mile long, and with the exception of two passing places, is not more than 55 feet in width, or of a sectional area of about one-half what the Canal is at other places. This limited width causes a strong current in the "cut," which greatly impedes the upward passage of large, deep laden vessels, that occupy fully one-third of its cross section: had no other demand been made on the water, than for ordinary purposes of the navigation, this "cut" even at its present width, with fenders on each side, might have accommodated the trade for several years to come; but the quantity of water that must necessarily pass to supply the extent of the mill power leased, renders its enlargement indispensable. The Estimate provides for its being made 100 feet in width, as recommended and approved of about 5 years ago, when part of the work above water surface was done.
D.—Deepening cut to 11½ feet below present water surface, 33,377 cubic yards, at $2 25..............................	75,098 25		C.—The bottom of the "cut," at many places, is barely as low as the present mitre sill of the Guard Lock; it will, therefore, be necessary to deepen it, at least, 2 feet, 3 inches, to obtain 11½ feet of water, in the level.
Removing Quarry refuse and earth from the top of ditto, 10,000 cubic yards, at 30 cents.............................	3,000 00	138,723 25	
Carried over.......... . .	....	139,098 25	

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	$ cts.	
Carried forward..............	....	189,098 25	
E.—Deepening prism of Canal from lower end of "Rock Cut," to head of Lock No. 4, distance 19,404 feet, width 80 feet, depth 1,75 = 100,613 cubic yards, at 32 cents	32,196 16		E.—In this portion of the Canal, there are several places where the rock crops out in the bottom, and the material to be removed is generally of a hard nature.
F.—Reconstruction of Culvert.......	6,000 00		F.—As this culvert must be lowered, it is proposed to substitute two cast iron pipes for the present structure.
Securing Bridge abutments at Cote St. Paul	600 00		
		38,796 16	
LOCK No. 4.			
G.—Taking up masonry of Lock, furnishing additional materials, and rebuilding 4,500 cubic yards, at $5.....	22,500 00		G.—This Lock is in a condition so unsafe, that under any circumstances, it must ere long be rebuilt, the greater part of the mortar having been washed or forced out from between the beds and joints of the masonry, and when the Lock is full, the water finds its way through the wing walls below the lower gates in large quantities. About 3 years ago, it forced out several of the stones. The following spring, part of the wing walls were taken down, when large holes were found in the interior, branching out towards both the rear and face of the wall.
Removing present foundation and deepening..............	3,500 00		
Providing materials, laying foundation, mitre sills, &c..............	8,000 00		
Excavation, embankment puddling.	3,750 00		
Unwatering work, alteration to gates and contingencies	3,750 00		
		41,500 00	
H.—Constructing new waste weir at Lock No. 4..............	....	10,000 00	H.—Although this work does not properly belong to deepening the Canal, still, it is absolutely necessary, and should be done at the same time that the water is out for the purpose of rebuilding the Lock, &c., &c.
I.—Deepening prism of Canal between Lock No. 4 and 3, distance 9,355 feet, width 80 feet, depth 1,75 = 48,507 cubic yards, at 30 cents..............	....	14,552 10	I.—It would have been very desirable, had circumstances permitted of raising this level so as to avoid any interference with the culverts passing through it, but the extensive water power leased at Lock No. 4 would be very much diminished in value, by adopting this course; while none of the head gates or works, at Lock No. 3, are suited to any other than the present level. It has therefore been considered proper, to base the approximate estimate on the principle of deepening the Canal.
K.—Alterations to River St. Pierre Culvert..............	....	7,000 00	K.—The sum set down in the Estimate, is intended to cover the expense of rebuilding this culvert, or of substituting cast iron pipes for the present wooden trunk, as may be deemed most judicious, on ascertaining the actual condition of the work.
L.—Alterations to culvert constructed for passing pipes of Montreal Water Works..............	11,000 00		L.—In order to obtain the necessary depth over the top of this culvert, at the same time leaving the pipes undisturbed, and retaining a like height as at present inside, it is proposed to remove the covering and top, leaving all other parts in the same state as at present, and forming a new top of heavy boiler plate iron, with sides of a lighter description of plate; in short, forming three sides of a tube well rivetted together, and strengthened with angle iron, this to be continued across the Canal and well into the banks on both sides.
Securing foundation of Brewster's Bridge, bye wash and walling of Railway Bridge, &c..............	2,500 00		
		13,500 00	
Carried over..............	....	314,446 51	

LACHINE CANAL.—Estimate of deepening.—*Continued.*

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	$ cts.	
Carried forward..................	....	314,446 51	
LOCK No. 3.			
M.—Taking down and rebuilding Lock same as No. 4........................	....	41,500 00	M.—This lock is in a like condition as No. 4, and will require to be taken down and rebuilt.
N.—Constructing new waste weir at Lock No. 3..................................	....	10,000 00	N.—The old lock used as a waste weir is in a very dilapidated condition, no dependance can be placed in its stability;—a new waste weir is therefore indispensable.
Deepening prism of Canal, from Lock No. 3, to Wellington Street Bridge, distance length 2,900, width 80, depth 1,75 = 15,037 cubic yards, at 30 cents....................................	4,511 10		
Alterations to culverts same as one below Côte St. Paul.......................	7,000 00		
Securing foundation of Bridge abutments, &c..................................	500 00		
O.—Deepening present basin between Wellington Street Bridge and Lock No. 2—57,000 cubic yards, at 30 cents	17,100 00	29,111 10	O.—The estimate provides for carrying out the principle laid down in the address,—that is to say, making all the basins already constructed 11½ feet in depth; which, it is believed can be done by excavating within 3 or 3½ feet of the dock walls, or as close as will not interfere with vessels. But to make the basins 17 feet in depth, as originally intended, when placing the mitre sills of the two tower locks, so as to have a draught of 16 feet water on them, although not provided for in the construction of the dock walls, would increase the amount of the estimate as follows, 130,000 cubic yards excavation at 30 cents.................................. $39,000 Tiling in front of dock walls and contingencies................................ 27,000 Amount additional......... 66,000
		405,057 51	
Add for Contingencies and Superintendence	....	40,542 49	
Total	....	446,600 00	

(Signed,) JOHN PAGE,

C E. P. Works.

Quebec, 23rd January, 1860.

WILLIAMSBURG CANALS.

Estimate of the probable cost of deepening the Williamsburg sections of the St. Lawrence Canals to 10½ feet water on Mitre-sills of the Locks, and 11½ feet in the levels between them.

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	$ cts.	
GALOP'S CANAL.			
A.—Deepening upper entrance above Guard Lock, distance 1200 feet by 60 wide, by 2 deep = 5333 cubic yards...			A.—The bottom in the distance stated, varie from 8 to 16 inches below the present mitre sill of the Lock, on which, in the summer of 1849, there was room 7½ to 8 feet water, and for a short time it stood at 7 feet, but the extension of the south, or river pier, since that time, has raised the water permanently, one foot. It is therefore believed, that lowering the bottom an overage of two feet, will affect the object contemplated. The rock which is adjoining the Lock, it is proposed to remove by blasting and otherwise, under water, and to dredge out the other material.
In this quantity, there is rock 300 cubic yards, at $3 50......................	1,050 00		
In this quantity, hard clay and boulders, 5,033 cubic yards, at $1 25..	6,291 25	7,341 25	
GUARD LOCK, OR NO. 27.			
B.—Construction and removal of coffer dams and unwatering work.......	3,000 00		B—The sill, platform, and chamber floor. must be lowered fully two feet, to give the required draught at low stages of the river. The foundation is on rock irregularly stratified.
Taking up mitre sills, recess platform, &c., and relaying them, lowering chamber floor, and securing walls, &c., &c..	9,500 00		
Removing, altering and re-placing lock gates..	1,000 00	13,500 00	
C.—Deepening between Guard Lock and head of Lock No. 23, distance 10,000 feet, width 50 by 2.25 = 41,666 yards, mean rate 30 cents................	....	12,499 80	C.—At a few places the water is sufficiently deep, but the greater part of the material to be removed is extremely hard.
Widening slopes &c. 20,000 cubic yards, at 25 cents..........................	....	5,000 00	
LOCK NO. 26.			
D.—Construction and removal of coffer dams, and unwatering work.....	2,500 00		D.—The water could be raised so as to leave the lower mitre sill of this Lock undisturbed, but the water power, owned and leased there by the parties who have erected an extensive starch factory, a grist and saw-mill, would be very much lessened in value—by so doing, the head and fall being only 6½ feet. It would further be injudicious to attempt drawing the water wholly out of the level below the Lock, (or Junction Canal,) the banks of which, having been made through the river, the seat of them was in some cases partially covered with stone. It is therefore proposed to construct a coffer dam, as provided for in the Estimate.
Taking up mitre sills, recess platforms, and underpinning walls, &c.....	6,450 00		
Removing, altering and replacing gates..	700 00	9,650 00	
Deepening prism of Canal, between Lock No. 26 and head of Iroquois Canal, (Junction Canal,) distance 12,910 feet, width 50 by 1.50 = 35,862 cubic yards, at 30 cents..........................	10,758 60		
Securing waste weir.......................	441 40	11,200 00	
E.—Deepening Iroquois Canal at different places, 12,000 cubic yards, at 26 cents..	3,120 00		E.—Since the construction of the Junction Canals, the water has been raised 1.75 feet in Iroquois section; there are, however, several places where dredging will be necessary.
Reconstructing booms through rock cut	1,500 00	4,620 00	
LOCK NO. 25.			
F.—Construction and removal of coffer dams and unwatering work......	2,500 00		F.—In October, 1856, there was only 8 feet 3 inches water on the lower sill of this Lock,
Carried over...............	2,500 00	63,811 09	

WILLIAMSBURG CANALS.—Estimate for deepening.—*Continued.*

Situation of Work.	Amounts.	Totals.	Remarks.
	$ cts.	$ cts.	
Carried forward	2,500 00	63,811 05	
Taking up lower mitre sills, recess platforms, &c., and relaying them, lowering chamber floor, securing walls, &c.	7000 00		and in September and October, 1858, there was 15 ft. 7 in., and 14 ft. 9 in. respectively; the foundation is of rock, which, in the chamber, is about the same height as the lower mitre sill—the whole of which, except at the immediate toe of the walls, it is proposed to remove to the necessary depth.
Removing, altering and replacing gates	700 00	10,200 00	
RAPIDE PLAT.			
Deepening upper entrance 600x60x2.50 = 3,333 cubic yards, at 80 cents	....	2,666 40	
LOCK NO. 24.			
G.—Construction and removal of coffer dams and unwatering work	3,000 00		G.—The sills of this Lock must be sunk about 3 feet, which will necessitate the taking up and relaying of the chamber floor throughout.
Taking up and relaying mitre sills, recess platform, chamber floor, underpinning walls, &c., &c	9,500 00		
Removing, altering and replacing Lock Gates, &c	700 00	13,200 00	
H.—Deepening between Locks Nos. 24 and 23, distance 18,120x50x2.75 = 92,277 cubic yards, at 35 cents	....	32,296 95	H.—The bottom of this level must be sunk, at many places, fully 3½ feet—but there being a few bays and places where less excavation will be required, the average has been assumed at 2.75; the material to be removed is of a hard nature generally.
Widening curves, slopes, &c., 30,000 cubic yards, at 25 cents	....	7,500 00	
LOCK No. 23.			
Taking up and relaying mitre sills, recess platforms, chamber floor, &c., cost same as No. 24	....	13,200 00	
FARRAR'S POINT SECTION.			
Deepening Canal from upper entrance to head Lock, 3,800x50x2.75 = 19,350 cubic yards, at 50 cents	9,675 00		
LOCK No. 22.			
Taking up and relaying mitre sills, platforms, &c., cost same as Locks above	13,200 00	22,875 00	
		165,749 [illegible]0	
Add Contingencies and Superintendence	....	16,250 60	
Total	....	182,000 00	

(Signed,) JOHN PAGE,

. E. P. Works.

Quebec, 23rd January, 1860.

I.

INSTRUCTIONS TO, AND REPORT OF THE CHIEF ENGINEER ON PROPOSED NEW LIGHT HOUSES FOR THE RIVER AND GULF ST. LAWRENCE.

DEPARTMENT OF PUBLIC WORKS
Quebec, 10th February, 1860.

SIR,—The Government having under consideration the erection of additional Light Houses in the River and Gulf of St. Lawrence, and as you have visited and examined a great part of the Coast, I have to request that you will prepare a Report on the subject and give your views on the comparative advantages of the various positions. You will also state the order in which you may consider the requirements of the navigation demand their construction, what materials shall be used, and you will prepare an estimate of the probable cost of those, the construction of which you may recommend, assuming that the Government would furnish means for conveying the workmen and materials to and from the sites.

In connection with this you will receive communications that have taken place between this Department and the Quebec Trinity House, the owners and the masters of the Ocean Steamers, and Captain Orlebar R. N. and Mr. Fortin, on the subject of locating the Lights, and you will also receive the correspondence that has taken place with the Light House Boards of Scotland, and the United States.

The places to which your attention is specially called are the following.

Battle Island.	Coast of Labrador.
N. E. end of Belle Isle.	“
Cape Bauld	Newfoundland.
Cape Norman	“
Point Ferolle	“
Cape St. George	“
Cape Anguille	“
Cape Ray	“
Point Enragée	
Bird Rocks	Gulf of St. of Lawrence.
Bryon Island	“
Greenly and Wood Island,	W. end of St. Belle Isle.
Murr Rocks and Island	Labrador.
Cape Whittle	“
Natashquin Point	“
Cape Observation	Anticosti.
North Point	“
Cape Chatte	“
Manicouagan Shoal	“

Metis, and such other points as you have visited,

You will also receive a communication from the Government of Prince Edward Island in reference to two Lights proposed to be erected on the East and North Capes of that Island, and you will be good enough after communicating with the Trinity House, to Report on the expediency, or otherwise, of joining in the erection of these Lights.

I have the honor to be, Sir,
Your obedient servant.
(Signed,) JOHN ROSE
Commissioner.

JOHN PAGE ESQ.
Chief Engineer
Public Works.

Quebec, 28th February, 1860.

THE HONORABLE THE COMMISSIONER
OF PUBLIC WORKS.

SIR,—In compliance with instructions conveyed in your letter of the 10th instant relative to the erection of Light Houses on the River and Gulf of St. Lawrence, and Strait of Belle Isle, I have the honor to report in order following:

1stly. The places visited and their comparative advantages for Light Stations.

2ndly. Order of construction recommended.

3rdly. Class of materials, &c., &c., with approximate estimate of the cost of the erection proposed to be first undertaken.

In carrying out this arrangement, the most distant place examined will be proceeded with first, following with the others in their order.

It is, however, considered proper to acknowledge at the outset, the obligations I was under throughout to the Charts and descriptive sailing directions, prepared by Admiral Bayfield, and others, as well as to information verbally supplied by other naval gentlemen, and lastly, though not least, to several gentlemen connected with the Trinity Board, Quebec, who accompanied me.

1stly. Description of places visited, &c., &c.

S. E. BATTLE ISLAND.

The Battle Islands, on the coast of Labrador, form the South point of St. Lewis Sound, and the South East Island of the group, shews, at the extremity both from the S. W. and N. E., and is said to be the first land generally made out by transatlantic vessels bound for Canada, by way of the Strait of Belle Isle. When seen from a distance of a few miles, it has an extremely dark, ill-defined appearance, which forms a striking contrast with the icebergs, not unfrequently seen within a short distance of it, as was the case on two occasions that I visited the locality.

Although named as if one, it consists of two islands lying close together, between which is a comparatively narrow passage, still sufficiently wide at its north end, to admit and afford shelter to fishing and other small vessels. The two, including the intervening space, are about one-half of a mile wide, by three-fourths of a mile long. The East Island is the largest, and may be known, irrespective of position, when viewed from a seaward direction, by a rugged sort of mound at each end, and another near the middle, in a N. E. and S. W. course. The latter stands further to the eastward, than either of the others, and was therefore considered as the most eligible position for a light house, of any place on the Island. The point thus chosen stands about 350 feet N. W. from ordinary water mark, and 190 feet over the level of the sea. Immediately S. E. of it, the surface has a slight declivity for a distance of 50 feet, then suddenly becomes rough and precipitous to the water's edge, towards the N. E. the surface has an inclination of from 10 to 40 feet in distances, varying from a tenth to a fifth of a mile, and at about 300 feet from it, in a northerly direction, there is a fresh water lake of considerable depth, and of fully five acres area. Other small lakes and ponds were observed on the Island, the appearance of which indicated an abundant supply of fresh water at all seasons, for every necessary purpose.

The Island is chiefly a Granitic formation, the lower part consisting of various colored granites, from dark red to light grey,—higher up, the rock has a dark appearance, intersected with large veins of quartz, and along the sides and bottom of a ravine on the N. W. part of the Island, near a fishing station, are some large masses of pholonite or clink stone apparently stratified, some of which are in detached blocks, of dimensions and shape well adapted for building purposes. The higher points, and that forming the site of the proposed buildings, are of a nature that the action of the weather seems to decompose, leaving irregularly shaped protuberances, standing over the general surface, not unlike pebbles in a bank of indurated clay, still it is durable enough for a foundation to any structure.

There is no suitable building stone on the Island, that could be easier prepared than the granite and clink stone above referred to. The one would, however, answer well for interior work, and the other for any purpose. The granite although expensive to quarry and dress, is well known to possess all the characteristics of good building stone, and its use in such a situation is believed, would be more appropriate and cheaper, than to transport any other class of building materials from a distance, the landing and handling of which, would unavoidably be attended with much uncertainty, great difficulty and expense.

This being common to several other places about to be brought under notice, to avoid repetition, it vill be more fully treated of under the head, " Class of materials."

Sand, I was credibly informed, could be obtained in St. Charles River, about 15 miles to the westward, where there is also an abundance of low stunted timber, used for fuel by the fishermen, but so far as I could learn, none of it would be suitable for Building purposes.

A Tower 50 feet in height at the place above stated, would overtop every point in a direction serviceable to vessels, and command a visible horizon of at least 21 nautical miles. It would be 22½ miles distant from the Light established on the S. W. point of Belle-Isle, and 18 miles from the N. E. end of that island. A light, if placed here, from the important position it would occupy, should be of the " *First order*," and so as to be readily distinguished from the present one on Belle-Isle, it should be on the revolving principle.

It however appears to me barely possible, that the mariner could derive an equal degree of benefit from a light on this island, as from one on the N. E. end of Belle-Isle, for the reasons hereafter stated.

NORTH EAST END OF BELLE-ISLE.

During high winds from any direction, no safe landing can be made at or near the N. E. end of this island, and the heavy rolling sea that continues long after a gale has abated, is equally dangerous; but after a continuance af moderately calm weather, no difficulty is experienced by small vessels in making Black Lakes Cove, which is formed by two low converging points, at the end of the island, where it is said fishing vessels, frequently ride for the greater part of the summer months. In the event of this point being selected as a light station, some difference of opinion may exist regarding the best position for the light, that is to say, whether it should be placed principally for the benefit of the North passage, which is the route preferred by vessels entering the strait, as the current, sets in through it and out on the south side of the island, or be placed so as to command the greatest range in an easterly direction also, if the former was the sole object, the *North Point, or Point Misery* would be the proper site.

But in my opinion, if a Light House is built on this end of the island, it should be placed so as to be of the greatest possible benefit to vessels in every direction, as it would then, to a very great extent, do away with the necessity of a light on Battle Island, while as a leading sea light, it would be in a more advantageous position than the latter, being fully 10 miles further east, in a seaward direction. Acting under this impression, a point at the N. E. end of the island, about 360 feet over the level of the sea, was selected as the site for the necessary building. Point Misery is about the same height, and bears W. N. W. from it, and a continuation of the same line would pass near Lark Island.

A light on this point could be seen in the north passage, from an outward bound vessel, shortly after losing sight of the light on the south west point, and when from 5 to 6 miles off, opposite the centre of the island, both lights could be seen at one time.

Thus all the objects connected with the north channel, that could be gained by a light on the north point, would be obtained by one at the place selected, while it would be nearer, and mark out with a greater degree of certainty, a reef that extends out two miles in a N. E. direction from the island, and it may be added, although a matter of less importance, it would be more accessible for the transportation of materials, and the necessary stores from the landing place, than either of the other points referred to could possibly be made at any thing like a moderate outlay.

From the cove, a roadway can be formed at comparatively little expense, for a height of about 220 feet over the sea, by following a narrow ravine, which rises gradually at the rate of one in five or six, for the first 75 feet in height, when it increases to a width of about 45 feet at bottom, with an inclination of one in nine or ten to the elevation above stated.

The upper part, although at places steep and as a whole rugged, can be easily ascended by following a circuitous upward direction, along which a passable road might be made at a moderate expense.

Although little else is to be seen at the extreme end of the island, than huge masses of bare sterile rocks, cut here and there into deep and all but impassable gorges, the view towards the interior, is diversified by a group of small conical hills and flat valleys, where patches of short coarse grass and furze, may be seen in a few sheltered corners; these are however the only signs of vegetable life, except the moss on the rock, still as a whole, it presents a far more cheerful aspect than the south end.

The rock is of a granitic character, the lower part is of a light grey color, but gets darker towards the top. In several of the ravines masses of green stone were found, some of which occur in small well shaped blocks.

An abundance of fresh running water may be obtained from a ravine, at about 160 feet below, and within 900 feet of the proposed site, which with the stone above alluded to, are all the island can supply towards the necessary erections.

Salt water sand can be procured in Chateau Bay, on the Coast of Labrador about 24 miles distant.

A Tower 40 feet high, with suitable dwelling houses for the keepers, would answer every purpose.

A light at this place being assumed as an efficient substitute for one on Battle Island, it should be of the "first order," and made revolving to distinguish it from the present fixed white light, on the S. W. end of the Island.

CAPE BAULD.

The advantages proposed hitherto to be gained by the advocates of a Light on Cape Bauld, although for general purposes already fully met, by the selection of a more advantageous position on the South West end of Belle-Isle, still having visited the place, a short description of it is submitted, as called for by my instructions.

The Cape is a well known prominent headland on the North point of Quirpon Island, and is the N. E. extreme of the Coast of Newfoundland. It is 14 miles south of Belle-Isle and 18 miles east of Cape Norman.

The place considered the most suitable site for the necessary erections, in the event of its being decided to establish a Light there, is on the highest and most Northerly point of the Cape, 50 feet back from the edge of the cliff, N. E. 750, and S. 500 feet, from the water line, and about 240 feet over the level of the sea. 800 feet towards the interior it attains an elevation of 330 feet over the sea. The North and West sides are bold but exceedingly rough. On the East is a large Bay, bounded by Split Point; in this direction the inclination is less abrupt, but it is intersected by deep chasms, which render the ascent difficult, unless by following a zig zag course that more than triples the distance; still a passable road might be formed on that side, at one-tenth of the expense it could be done on either of the other sides.

It is a stratified lime stone formation of an extremely coarse texture, especially the upper 50 or 60 feet, which is much weather worn, and larges masses of it lie along the face of the cliff partly decomposed, but a more compact and better class of stone, can be found lower down, which, when broken, has a fracture resembling some classes of dark grey granite, so that there is every reason to believe an abundance of good stone, could be found in the vicinity.

There are some small fresh water Lakes a short distance from, and about the same height as the place selected, and a spring which appeared to be continuous, was found in the immediate neighborhood. Salt water sand is said to be abundant in Noddy or Quirpon Harbor, from 4 to 5 miles distant.

CAPE NORMAN.

This Cape is, with the exception of Quirpon Island, the most Northern part of Newfoundland; seen from the Eastward, it appears to stand out prominently, but from the Westward it can scarcely be distinguished from other parts of the so called "Straight" Coast. It appears nearly level on top, and moderately high.

The Light House on the S. W. end of Belle-Isle, bears from it N. E. ¾, E. 24 miles. The light on Point Amour bears W. by 5½, S. 36 miles, and the opposite coast of Labrador is distant 14 miles.

To promote the safe and facile navigation of the Strait, no point, in my opinion, could be more advantageously selected for the erection of a Light House than Cape Norman, and it is admitted, by all the seafaring gentlemen, with whom I have had an opportunity of conversing on the subject, that it would in point of importance be second only to those already established. A fact which will be evident to any one, on bearing in mind, that, in moderately clear water, a vessel, from the time she entered the Strait, at either end, would be constantly in range of one or other of the Lights, consequently at all times, her relative position could be correctly ascertained.

The site fixed upon, is on the most northerly and highest point of the Cape, 80 feet south from the edge of an all but perpendicular precipice, 60 *feet high*, (about 400 feet long in an East and West direction,) and 90 feet westerly of a very remarkable weather worn high rock, that at a short distance resembles the ruins of a large dilapidated building; immediately to the south of it, is a patch of sand 50 feet square, and from 8 to 12 inches deep, overlying the rock. This sand is, however, of too fine a grain for building purposes.

About one-fourth of a mile to the South East, is a plot of ground several acres area, apparently of good soil, and well sheltered, which might be of great service to the keepers as a garden. This is the only spot fit for such a purpose, observed at either of the places so far brought under notice.

There are a few ponds of fresh water in the vicinity, which appear as if they might supply sufficent water for ordinary use.

Salt water sand, it is said, can be obtained in Pistolet Bay, a few miles to the Eastward.

The whole of this part of the coast consists of lime stone, the upper or exposed parts of which, especially the Cape, presents an extremely rough, weather and water worn appearance, except about 400 feet in length of the face of the cliff, which is as sound as if only recently exposed to the weather. The lower part lies in regular and uniform strata, of from 8 to 80 inches in depth. It is of a dark blue color, sound, and of as good a quality for building purposes, as most classes of lime stone; it can be easily quarried, dressed and delivered on the spot required.

A Tower 65 feet in height, with a "third order" flashing light might be placed here to distinguish it from the lights at Point Amour and Belle-Isle, both of which are fixed.

The erection of a Light House on *Greenly* or *Wood* Island at the Western entrance of the Strait of Belle-Isle, having been previously urged on the Government, by parties claiming a knowledge of the locality and wants of the navigation, both these islands were visited, and their relative positions ascertained with care, although in my opinion, no necessity whatever exists for a light on either, except it may be for the benefit of the Fisheries, and very limited coasting trade, connected with them and Bradore Bay, especially if Point Ferollè on the opposite side of the strait, is selected for a light station. A short description of both islands is however submitted.

GREENLY ISLAND.

Is on the Labrador side of the entrance of the Gulf through the strait, about 13 miles W. S. W. from Point Amour, the present light station, and lies fully one-half mile to the North of a line between the latter and Wood Island. It is low and unproductive, and about ¾ of a mile across, in either direction.

The point fixed upon in the event of a light being established there, is near the S. E. end of the island, on a plateau 50 feet over the level of the sea, where the rock is covered with sand to the depth of 8 feet,—it is about 650 feet west, and 500 feet north of high water lines, and 300 feet from it, in a northerly direction, the surface is fully 30 feet higher, but a light placed so much to the north, as to be on this high ground, would be obscured in an easterly direction by Wood Island.

The island consists wholly of red sand stone, of a close grained texture, lying in blocks of every size and shape, suited for building purposes. Salt water sand of a sharp angular grain is abundant on the spot, and there are numerous large springs of fresh water, on different parts of the island.

WOOD ISLAND.

This island lies further to the South, and is fully a mile to the Eastward of Greenly Island; it is about one mile wide in an East and West direction, and nearly two miles long; moss and coarse grass are its principal vegetable productions.

The S. W. point of the island, stands about 50 feet over the sea, and has a gradual inclination towards the North of 80 feet, in a distance of about 800 yards; thence in a North-easterly direction the surface is fully 200 feet higher.

It is a sand stone formation, similar to Greenly Island. Sand, in like manner, is abundant, but fresh water appears to be less plentiful.

POINT FEROLLE.

This headland is on the Newfoundland side of the Gulf, near the western entrance, through the strait lying S.S.W. 28½ miles from Point Amour, 21¼ miles from Greenly Island, and N. E. by E. 22 miles from Point Rich; it is flat and of moderate height, but stands out prominently, and appears like an island when seen from a distance: it is, however, connected with the main land by a very narrow neck, which separates the Bay of St. John from New Ferolle Bay.

A short distance back from the shore, it is wooded with spruce and other trees, some of which are of good size, but they are generally small and stunted; fresh water ponds are abundant in the interior.

The place marked out as the most advantageous site for a Light-house here, is 55 feet over the level of the sea, 200 feet south from high water mark, and about one-third of a mile from the extreme S W. point, which forms the N. E. side of the Bay of St. John, and within a short distance of three fresh water ponds, one of which is fully 2½ acres area. In a S. W. direction from it, the ground rises from 5 to 6 feet, and to the N. E. it diminishes in height, and the coast trends towards New Ferolle Bay.

The point consists principally of dark blue limestone, the surface of which, where exposed, is much weather-worn, but the rock being of good quality, there is every reason to believe, that sound and durable building stone, of any dimensions, can be found a few hundred feet back from the margin of the sea.

At a few isolated places along the shore, small patches of sand were observed, but not of a class suitable for building purposes. I was, however, informed by some fishermen, who reside on the east side of the point, that salt water sand was abundant, in both St. Margaret and St. John's Bay.

A tower 85 feet in height, fitted up with a "second order" light, would, in my opinion (in which many intelligent naval gentlemen concur), be of more importance and service in promoting the safety of the navigation, than one on any other place that could be selected at or near the west end of the strait of Belle Isle. Distinguishing characteristics will be referred to hereafter.

The erection of an efficient light near the S. W. extremity of Newfoundland, as a guide to vessels, passing by the south entrance to the Gulf of St. Lawrence, has always been regarded by mariners and others, more or less conversant with the navigation by that route, as one of the most *important* that could be established. It was therefore considered proper to examine all the different places, along the coast, that have been from time to time recommended as eligible positions for it, each of which will claim attention in order following.

CAPE ANGUILLE.

Forms the S. W. point of St. George's Bay, and lies 18 miles N. ½ E. from Cape Ray. Its summit, not less than 550 above the level of the sea, is closely wooded with a variety of trees, principally of small growth, but not of that stunted appearance common to those along the northern part of the coast.

The side next the Bay is precipitous and bare, for a height of from 250 to 300 feet over the water—towards the west the acclivity at the extreme point is regular but steep, and recedes in a S. easterly direction, leaving a triangular flat of low ground along the shore, increasing in width towards Cod Ray harbor, which lies about 2 miles south of the Cape.

In case of it being decided to construct a light house on this part of the coast, two places were examined, either of which might be considered as presenting a favorable site.

One is on the S. W. point of the plateau above referred to, which, although 25 feet over the water surface only, stands more seaward, than any higher position that could be chosen.

The other is on the extremity of the cape, at an elevation of about 250 feet over the sea.

A light at the place first mentioned would possess the advantage of being more accessible, and less liable to be obscured by fogs, than one on the higher part of the Cape, but the latter would have a more extensive range, and in that respect may be fairly considered as the preferable site. Strictly, there would be little or no difference in the actual outlay required at either place, as the greater height of tower necessary on the less elevated ground, would, as regards expense, be fully counterbalanced by the cutting and formation of a road, as a means of access to, and around such buildings as might be erected on the higher ground.

This place as already stated, is on the extreme point of the Cape and may readily be known, from its being on a small flat, near the top of the unwooded patch, on the face of the mountain, remarkable at a short distance for its triangular shape, bright green color, and uniform appearance.

A Light Tower there, from 35 to 40 feet high, would answer every purpose, on which a good light, in the ordinary state of the atmosphere, could be seen from the deck of a vessel a distance of at least 25 miles.

A roadway, with an inclination of one in four or five, could be formed, (although at a considerable expense) by following a zig zag upward course, along the S. W. west side of the green patch above referred to.

Timber for fuel and ordinary purposes is abundant, and there are several running streams of fresh water, at distances of from one-half mile to a mile respectively, from the proposed site.

The lower part of the cape consists of a light gray close grained granite rock, well adapted for building purposes. There is an abundance of salt water sand in St. George's Bay, and it is said it could also be obtained in Cod Ray harbor.

Point Enragée and Duck Island.

This point is low, rocky and bare, and can scarcely be distinguished from other parts of the coast until close up with it. On the east, " Rocky bay" gives it the appearance of a greater degree of prominence. On the west, there is nothing remarkable, except that the same rugged coast trends slightly towards the N. W. for a distance of about three quarters of a mile, where the rock disappears; thence to Cape Ray the shore is of sand, alternating in low flat beaches and high banks, around a large deep bay, where it is said ships occasionally come to anchor.

The point lies S. S.E. about 4½ miles from Cape Ray, and appears inland in a line between it and Duck Island, which lies in a south easterly direction, about 1½ miles from Point Enrageé, and is very apt to be mistaken for it, from the deck of a vessel a few miles off.

This may account for the Point having been recommended as a site for a light-house; but although it is the most salient point of the main land, it certainly appears, when on the spot, to be within range of Duck Island and the coast to the eastward, and as if a light on it, would have the disadvantage of being eclipsed near the shore, in an easterly direction, by the high islands south of Grand Bay.

It is about 25 feet above the level of the sea, and consists of granite through which large veins of trap run in every direction, the surface is very rough and irregular, except a space of about 40 feet square, within 150 feet of the extreme point. This level space is considered the best site for the Tower, in case a light is placed there. In the vicinity there are several fresh water ponds.

It however appears to me, that Duck Island is the most eligible position for a light house in that neighbourhood, as nothing could obscure it in any direction, serviceable to inward bound vessels, and it could not be shut out from view, except by Cape Ray, to those outward bound.

This island is also of a granitic character, the stone of a light grey color, close grained, and well adapted for building purposes.

It is from 10 to 12 acres area, covered with a thick growth of moss, with occasional patches of short coarse grass.

A few fresh water ponds were observed, but none of them were large enough for any useful purpose; their capacity might, however, be increased at a small expense, to hold water sufficient for ordinary use.

Salt water sand can be obtained in "Rocky Bay," of which the island forms part.

The place marked out as the site for the necessary buildings, if decided to make this a light station, is on a flat near the S. E. side of the island, 25 feet over the sea, 300 feet back from the water line, and 300 feet east of a small bay, about 150 feet wide, deep inside, but barred at the entrance by sharp pointed rocks.

CAPE RAY.

The extreme point of this cape, is about two-thirds of a mile wide in an east and west direction. It is flat and bare, with the exception of the S. W. side, and part of the middle, which are covered with dwarf spruce trees, closely matted together, seen from any point of view, the Cape in connection with the land lying to the northward, is very remarkable, near the shore, it is comparatively low, but about two miles inland, is a conical hill (*called the sugar loaf*) not less than 600 feet high, a little further to the north, is a mountain that rises still higher, which, on the N. E. side, appears to be almost perpendicular, and quite flat on top; between this mountain and the large "Sugar loaf," are two other separate conical hills, of less height, which in clear weather, can be seen at a great distance.

The place selected and marked out as the most advantageous position for the erection of a Light Tower, is about the centre and highest part of the Cape, 85 feet over the level of the sea, and 1,000 feet north of water mark, and at the place referred to above, as covered with dwarf spruce. The top of the "East Sugar Loaf" bears from N. E. by N.

The whole Cape is a granite formation; where the surface is flat, it is generally covered with from two to three feet of soil. The stone are of a close compact texture, well suited for structures that should be of a permanent nature. Fresh water for any purpose can be obtained, from running streams in the vicinity. Salt water sand may be had in the Bay on the N. E. side of the Cape.

Having thus referred to the different places, examined on this part of the coast, I submit that in the event of two Light houses being built, one of them should either be on Duck Island or Point Enragée, and the other on Cape Anguille. But if one is deemed sufficient to meet the wants of the navigation, in that case Cape Ray may be considered the preferable position.

Attention is drawn to this, from its having been urged that few shipwrecks or casualties of that nature were ever known to have taken place in the immediate vicinity of Cape Ray, but that they had been of frequent occurrence on the coast, at and Eastward of Point Enragée, and in St. George's Bay, consequently that these are the places for light stations.

In reply, it may be said that a light on Cape Anguille, would be of no service whatever to an inward bound vessel, until fully up with Cape Ray, further, that the wrecks which have occurred at, and in the vicinity of St. George's Bay, may be attributed fully as much to masters of vessels, hesitating to make free with the "Bird Rocks," as to any other cause, and that in order to give these known dangers a wide berth, they stand well to the north, when it frequently occurs in case of dark heavy weather, together with the set of the tides, that for several days the position of a vessel cannot be correctly ascertained; hence St. George's Bay is sometimes taken for the passage South of Cape Ray.

It is however, generally believed by seamen that occurrences of this nature, would be less frequent if a light was established on the "Bird Rocks," as vessels bound to and from Canada, could then stand boldly on their course, which lies a considerable distance to the S. W. of St. George's Bay.

Relative to a light at or near Point Enragée, it may be said, that although it would be more serviceable there, in an easterly direction, it would be in a less advantageous position, to vessels outward bound, especially if to the north of their course, as the light would in that case be eclipsed by Cape Ray; it is therefore believed that if placed on the latter, it would be of more general utility.

ISLAND OF ST. PAUL.

It having been intimated that the light on the S. W. end of this island, might be removed to a more eligible position, the place was visited with a view of ascertaining the nature, and condition of the works, of which the following is a short description.

The Tower is a wooden structure, of an octagonal shape, covered with shingles all round, and painted white; it has stood fully 22 years. The light revolves, and the apparatus is constructed on the catadioptric principle; it is in good order, appears to be well kept up, and shews a good light.

There is a fog bell kept in motion by clock work, connected with the Tower, this the keeper set in operation in my presence, but the bell was not heard aboard of a vessel, lying from 1½ to 2 miles off the island.

On fully considering this question, I am of opinion, that the expense of taking down, and again fitting up the lighting apparatus, which is all that could be of use, would amount to full as much as it is worth, apart from the propriety of removing a light so long established, and well known to mariners.

BIRD ROCKS.

These dangerous rocks are situated in the Gulf of St. Lawrence, all but in the direct track of vessels passing to and from Canada, through the channel S. W. of Newfoundland.

In passing them, it is generally recommended to stand well to the eastward, but occasionally vessels pass beetween them and Bryon Island, the east end of which is about 10¼ miles to the westward of the N. W. or little "Bird Rock," and from the latter the east point of the Magdalen Islands is distant 16½ miles.

The weather having been moderately calm, for some time previous to our visiting this part of the Gulf, hopes were entertained that little or no difficulty would be experienced in landing on the largest of these islets, but shortly after passing the island of St. Paul, a light breeze sprung up, which continued to increase as we approached the place; it was therefore decided to proceed towards Bryon Island, and anchor there until the following day. The wind having abated during the night, we left next morning for the Bird Rocks, but the sea, comparatively smooth at a short distance off, was found to break on them with such force as rendered it unsafe to approach closer than to within from 80 to 100 feet of either side, this being the case, it was considered best to make such observations, as the circumstances then admitted of, without waiting longer for the purpose of landing, especially as we had been credibly informed, that weeks might elapse before this could be effected.

Admiral Bayfield, in the sailing directions prepared by him, describes these islets as follows.

"The Bird Rocks are of coarse red sand stone or conglomerate, in strata dipping very "slightly to the S. W., and are constantly diminishing in size from the action of the sea. "They present perpendicular cliffs on every side ; yet, it is possible to ascend with great "difficulty in one or two places, but there is no landing upon them, except in the calmest "sea. Every ledge and fissure of the cliffs is occupied by gannets, and the summits of "both rocks are literally covered with them. The white plumage of these birds give "these rocks the appearance of being capped with snow, and renders them visible through "a night glass, in a clear moonlight night, from a distance of 7 or 8 miles

"The two Rocks bear from each other N. N. W. ½ W. and S. S. E. ½ E., and are "about 700 fathoms apart. Sunken rocks leave only a boat passage between them. The "South Easternmost is the largest and highest, though scarcely 200 fathoms long, and not "more than 140 feet high above the sea."

To the above general description of the largest islet may be added,—the West and North sides, round to the N. E., are the highest parts of it (about 140 feet over the level of the sea,)—the S. W. angle is from 30 to 40 feet lower, and the top of that place has a gradual inclination upwards, and is covered with green moss or short grass.—At several places around the foot of the islet, are large masses of rock, of a similar character and appearance as the sides of the precipice, some of which are partly over the water.

The upper part of the sides generally falls back from 40 to 50 feet, the greatest inclination being immediately at the top: but on the N. E. side, in an indent, of from 30 to 35 feet in depth, and about 160 feet in width, the face of the rock seems to be all but perpendicular, and at the S. W. corner, apparently the only accessible place, the acclivity is less than elsewhere, and the strata of the rock is so stepped off, that ascending it there does not seem so formidable a matter, as to effect a safe landing on it.

The Rock, although a sand stone formation, appears to be of a hard nature; still the incessant washing of the sea must be gradually wearing it away, but the smooth solid appearance of the lower part of the sides, indicate the process to be slow.

The top is completely bare, and those who have been on it, say there is no fresh water, except what may lodge in the crevices of the rock during rain storms.

In short, it presents every difficulty that can well be imagined, to the landing of such materials as are necessary for the erection of a Light House, and notwithstanding anything that could be done, to facilitate that object, the place would be accessible only during a continuance of calm weather, which, in that vicinity, is generally of short duration, and always uncertain, as frequently heavy seas accompany a dead calm, either before or after a gale. Although these difficulties and unavoidable delays would be found extremely perplexing, still I am of opinion that, with proper arrangements and a suitable equipment of vessels, judiciously managed, the erection of a Light House on the S. E. islet, could be successfully accomplished.

All the captains and masters of vessels with whom I have had an opportunity of conversing upon the subject, have expressed it as their opinion, that the erection and maintainance of a good light at this place, would be of more benefit to the navigation, than any one that has been or could be built, on the ocean route of the St. Lawrence.

All further agree, that the dread of making too free with the Bird Rocks, has led to tenfold more shipwrecks and disasters elsewhere, than ever occurred directly on them, that is, the greater number of casualities of that nature, which take place on Bryon and Magdalen Islands, and along the Western coast of Newfoundland, may be attributed to a desire on the part of masters of vessels, to stand clear of these dangerous "rocks."

The following statement of shipwrecks &c., that took place between the years 1845 and 1857 was furnished by Mr. Wayght, a gentleman who at the time of our visit resided on Bryon Island, viz :

10	Vessels	wrecked (gave their names)	Off Bryon Island.
1	do.	driven ashore, but got off in 24 hours,	
2	do.	abandoned at Sea,	
6	do.	wrecked,....................................	Magdalen Islands.
4	do.	do..	Bird Rocks.

It is not however to be expected that this list, made from memory, contains a full catalogue of the disasters, that have taken place within the dates stated, as no doubt shipwrecks have occurred within the same periods, on the western coast of Newfoundland, and some, it may be, of which not a single trace was left, whose fate may have been vaguely chronicled as "foundered at sea."

Without presuming to say to what extent such casualities would be avoided, by establishing a light and proper signals, in case of "Fog" or snow storms on the "Bird Rocks," it may fairly be inferred they would be greatly diminished, thereby creating not only such a degree of confidence in the St. Lawrence navigation, as would tend to lessen the rates of Insurance, of both vessels and cargoes,—but what is of far greater consequence, it would be a step in the right direction towards promoting the cause of humanity, by ameliorating the dangers to which shipping of all classes are exposed, and might be the means of saving many valuable lives from sudden accident, and the still more dreadful calamity of a lingering death, from starvation aboard of a foundered vessel.

But the great difficulties to be encountered, and outlay necessarily required in the first instance, together with the future maintenance of a light on the "Bird Rocks," are questions that naturally lead to the enquiry, whether a light would not serve nearly, if not altogether, as good a purpose on the east end of Bryon island.

This, there is good reason to believe, would not be the case, as a light station on any point that could be selected there, it is to be feared instead of being a "beacon of safety," would have a tendency to draw vessels on to the very danger that should be avoided; while the indispensable alarm signals during dark, hazy weather, would be of little or no service whatever, unless it be assumed that the narrow passage between that Island and the "Bird Rocks" is equally safe, as the one to the eastward of the latter. But this no nautical gentleman to my knowledge admits, neither does Admiral Bayfield or any other Hydrographer recommend it.

The question is therefore looked upon as disposed of, and the S. E. Bird Rock understood to be the proper place on which the light should be erected.

Acting under this impression, and considering fairly all the known circumstances connected with the prosecution of such a work, I am of opinion that in a situation so isolated and remote, where the landing of workmen, provisions for their use, and materials for the structure, would be exposed to so much risk and delay, the prudence if not the practicability of erecting buildings of the ordinary class, may fairly be questioned. At all events there can scarcely be a doubt, but that the object could be more expeditiously, and economically effected by an iron structure, such as could be fitted up and perfected before leaving the establishment at which it was made, taken apart and transported to its destination in pieces that could be easily handled, and when safely landed, would require only to be refitted, and secured to the rock.

A house for stores, and the keeper's accommodation must also be provided, built either of iron or wood,—the former, to guard against accidents, would be preferable. A tower of from 25 to 30 feet in height, would be sufficient to enable the light to be seen from the deck of a vessel, when within one-third of a mile of the rock.

The objections generally made to the use of iron as a principal material for *light towers*, can scarcely be said to bear on this case,—the structure itself being low, it would be subject to little or no vibration from the action of winds, and, being in a great measure beyond the reach of salt water, it would not be liable to oxidise, from any other cause than atmospheric influences. Iron buildings might therefore be classed as permanent structures, when used in such a position.

These remarks although properly coming under the head of "class of materials" are submitted in connection with this exceptional case.

Bryon Island.

This island as already stated is situated 10¾ miles South Westerly of N "Bird Rock.' In that distance it lies three miles further to the south, and fully nine miles south of a line that touches the Birds, and passes midway between Cape Rosier, and the Island of Anticosti on the N W, and within 5½ miles of the Island of St. Paul on the S E. Otherwise, that it lies a considerable distance, south of the track of the vessels, which leave "Birds" to the westwards, as recommended by Bayfield and others for large ships.

The Island is fully four miles long in an easterly and westerly direction, the breadth varying from a half to one and a quarter mile. It consists principally of red and grey sandstone, part of which is of an exceedingly brittle, and shaley nature, and principally covered to a depth of from 10 to 15 inches, with red ocherous clay. The rock forms perpendicular cliffs, with few exceptions, all around the Island.

The low undulating hills of the interior, are partly wooded with spruce and poplar, and when clear, the surface is closely covered with good quality of native grass, which affords good pasturage for cattle.

Mr. Wayght, the gentleman before referred to, has an extensive tract of land under cultivation, which produces excellent crops of oats, barley, peas, and spring wheat, besides a large dairy and nearly 100 sheep, &c., &c.

In the event of its being selected for a light station, I consider the facilities for its erection and maintenance, are better than at any other place along the whole line of coast visited, whether viewed in reference to materials, or the means of provisioning the workmen and subsequently the keepers.

Two places were examined as more or less advantageous sites. One of these is on the east point of the Island, about 60 feet over the level of the sea, which is the nearest to the Bird Rocks, of any place that could be selected short of being on one of them, but it would have the disadvantage of being eclipsed by higher ground in a Westerly course. This is however of less consequence, as it would be open in all serviceable directions.

The other is on the north side of the Island, about 1½ miles from its eastern extremity, and immediately north one half mile of a small cove, opposite which vessels find good anchorage and shelter from north and west winds. This point is 200 feet over the level of the sea, and one quarter of a mile south of water mark

A light there would possess the advantage of being visible in every part of the horizon, and command a greater range, than if placed on the less elevated ground at the east point, and in these respects might be considered the preferable site, but on the other hand it would be more liable to be enveloped and obscured by fog.

A good light at either of these places, would be useful on many occasions, but as before stated, it could not in any respect be considered as an efficient substitute for one on the Bird Rocks.

Attention is drawn to this Island principally as being the nearest, if not the only place, where those engaged in the construction of a light house on the "Birds" and subsequently the keepers can obtain the necessary supplies of fresh provisions, vegetables, &c.

GREAT MECATTINA ISLAND.

This island is on the coast of Labrador, 78½ miles in a south-westerly direction from Greenly Island, at the Western entrance of the strait of Belle Isle, it stands out fully 2½ miles from the main land, the intervening space being known as Mecattina Harbor.

The Island is large, completely bare, and not less than 500 feet high in the centre, it consists of granite traversed with deep chasms and trap dykes, which, together with its relative position to the main land, presents an apppearance so remarkable, as to be readily distinguished from other parts of the coast.

On the east and south, it is surrounded with a number of small islands and rocks, the principal of which are Treble, Murr islets and rocks and Flat Island. These forming the chief dangers in this vicinity, their relative positions were carefully examined, and the place subsequently fixed upon as the most advantageous site for a light house was on

Flat Island, which lies about 3 miles seaward of the south point of great Mecattina Island. It is about three quarter of a mile diameter, including a deep indent on the east and west sides, which form well-sheltered coves easy of access to small vessels, especially the one which opens to the N. West.

The island, like all others on this part of the coast, is of a granitic character, the rock generally has a reddish tinge, except along the side of a gorge, that runs in an east and west direction through the island, where it is of a light grey color.

It is completely bare, with the exception of a few sheltered places, which are covered with short coarse grass. Several fresh water ponds were observed, generally of small area, but two of them were found to be of considerable depth, and appeared as if they contained water throughout the year.

Salt water sand is said to be abundant at "Sandy Cove" in Meccatina Harbor.

The place selected as the most suitable for the erection of the necessary buildings, is the highest level spot on the S. W. side of the island, 85 feet over the level of the sea, 140 feet south of the gorge above refered to, 240 feet north and 750 feet in a north easterly direction from water mark.

A Light on this island would possess the advantage of being nearly midway between the western entrance of the Strait of Belle Isle, and the light station proposed to be established in the vicinity of Cape Whittle, and would stand about 5 miles to the northward of a line between these points.

It is believed a Tower 50 feet in height, with a "second order" light, would be sufficient for every purpose.

CAPE WHITTLE.

This Cape is on the Labrador side of the Gulf of St. Lawrence, 61 miles in a South Westerly course from Great Meccattina island, it is the most salient point of the coast, and the shores on both sides of it are comparatively low, presenting an outline so little diversified, that at a few miles distance, it is barely possible to distinguish one part from another.

On the Southwest and south, round to the East, the Cape for several miles outwards is shut in by innumerable small islets and rocks, principally low, and scarcely perceptible until close up with them, which together with the course of the shore on each side, makes it one of the most dangerous places on that part of the coast.

In the sailing directions for the Gulf and River St Lawrence prepared by Admiral Bayfield, this place is referred to as follows: "There are many small rocks above and under " water, off the southward and westward from Cape Whittle. The two outermost of these, " which are half tide rocks, are distant from the Cape 2¾ miles, and are called the Whittle " rocks. All these rocks are steep, with from 20 to 40 fathoms water between them."

In reference to the so called " Southmakers Ledge " he also states: " This dangerous " Ledge bears from Cape Whittle (the S. W. extreme of Lake Island) S. E. ¼, E. 6½ miles: " but the Cormorant Rocks lie directly between them, leaving a channel between these " rocks and the Ledge nearly 2¾ miles wide, &c., &c. There is no channel between the " Cormorant Rocks, or between them and Lake Island, excepting for small schooners, whose crews know the position every ledge."

The isolated and dangerous position of this Ledge is however much more obvious, on enlarged copies of "Naval Charts," than from any description that can be given, and it is still more convincing than either to be on the spot, and there observe its relative position to the Islands and coasts, from all of which it is distant fully 3 miles, lying considerably to the southward of either, and so low as scarcely to be seen until all but alongside of it, and at the same time observe that it is nearly opposite a point, where the coast suddenly changes from a S. W. course, to one almost directly West.

The Rock itself consists of compact *granite*, worn as smooth as glass by the incessant rolling of the waters. Its top surface is 130 feet long, 65 feet wide at one end, and 35 feet at the other, about 35 by 45 feet at the East end, it is within a few inches of being level on top, and at the time of our visit, was 5½ feet over the water; the West end is lower, and, between the high and low parts, there is a gully from 10 to 15 feet wide, the bottom of which was then about 18 inches below the water surface.

From this description of the Ledge, it will be seen it presents a surface sufficiently large, for the foundation of a Light Tower, and it will also be evident that if one was erected there, it would effectually point out the rocks and reefs that should be avoided, being itself on the most seaward, and consequently the most dangerous of all.

While it is equally certain that any structure, placed in a portion so exposed, must be of the most substantial character, to be capable of resisting the shock of the waves, (unbroken by surrounding reefs,) and the impact of heavy bodies, such as timbers or spars, thrown against it by the sea.

The materials used must therefore be of a solid and compact nature, in large masses, well fitted, and secured to each other, and to the rock underneath, in short, a difficult and expensive class of work would be indispensable, with every draw-back that can well be thought of, to contend against in the way of its execution.

Although there is no reason to apprehend that obstacles would be encountered, which have not been successfully overcome in similar works elsewhere, still it is greatly to be feared, that the large outlay required, would affect the probability of the necessary appropriation being made to carry it out.

Under such circumstances, and keeping in view the fact of the great number of headlands, reefs and shoals calling for so many lights, both along the seaboard and inland navigation, proportionately increase the expense of an establishment, from which no direct revenue is derived. The propriety of such an expenditure, on one structure, might be fairly questioned, especially as it is not in all cases essential to the safety of vessels, that a light commanding a visible horizon of from 20 to 24 miles, should be placed on the extreme point of danger.

Considering the subject under this view, both on the spot and subsequently, it is believed that the object can be effected at much less expense, although, it must be admitted, in some respects in a less efficient manner, by placing a light on one of the " Cormorant Rocks," which lie about three miles to the North-west of the " South maker's ledge."

A number of these islets were examined, the first being the

S. E. Cormorant, which is 250 feet long by 70 feet average width, the highest part of it stands about 6 feet over the water, is 35 feet diameter, and nearly level. At other places the surface is very irregular.

The Nest Rock lies about a thousand feet N. W. from the S. E. Cormorant. It is about 150 feet long, by 100 feet wide, and stands 20 feet over the water, at the S.E. end ; and 14 feet at the N. W. end.

It is believed a light tower could be erected on this islet, at less expense than on any other equally advantageous site, that could be selected, on this part of the coast. It is however, nearly 3 miles N. W. of the South-maker's ledge, and lies about ¾ of a mile to the north of it. Although a light there would not mark out the ledge, with an equal degree of certainty, as if directly over it, still it would point out, with greater precision, the no less dangerous " Whittle Rocks," lying fully five miles to the westward.

I am therefore of opinion that the " Nest Rock" should be selected as the site for a light house in that vicinity, unless a subsequent examination, when about to proceed with the work, should indicate a more favorable position.

The Tower should be at least 90 feet in height, so as to command an extensive range, and the lower part of it must be formed of heavy materials, well connected together, to resist the impetus of the sea, to which it will be subject in case of storms.

The small area of the " Rock" will prevent the necessary buildings for the keepers' accommodation being erected on it, these, together with the principal store house, can be advantageously placed on the outer Wapitagun Island, which lies to the northward, about 1½ miles, inside of which is a good harbor with an entrance at its Eastern and Western ends.

This Island, as well as all others visited on this part of the coast, is of granite.

Sand, it is said, can be obtained of Coacoacho Bay, about 7 miles to the westward of Cape Whittle.

A few fresh water ponds were seen on the Island above referred to, some of these it would be necessary to enlarge, as the nearest rivers are a considerable distance inland.

NATASHQUIN POINT.

This cape lies 63 miles westerly from Cape Whittle, 57 miles north of the east point of Anticosti, and is the extreme southern point of land on this part of the coast of Labrador. It is low, and scarcely perceptible at a moderate distance, except from its being at the termination of a range of high sandy cliffs, that extend along the shore for upwards of 13 miles to the eastward.

From the point westwards to Natashquin River, a distance of about 3¾ miles, the sand along the shore has been drifted into mounds and ridges, of from 20 to 35 feet in height, at distances varying from 200 to 350 feet back from the water. To the north of these, the surface of the ground is much lower, and covered with spruce trees, some of which are of good size.

The place selected for the site of a light tower, is on the S. E. end and most seaward part of the Point, a short distance to the eastward of a small fresh water stream, and 300 feet back from, and 25 feet over the sea, on a deep deposit of sand.

There is no stone in the vicinity; abundance may, however, be procured a few miles in the interior and within a distance of 15 or 20 miles on either side along the coast.

A light here would be 54 miles from the easternmost of the Mingan Islands, and, it is believed, would be highly useful as a guide to vessels, both by day and night.

CAPE OBSERVATION,

On the north side of the Island of Anticosti, was also examined, and estimated to be nearly 500 feet high. It is a limestone formation, closely wooded on top, and the coast, for a great distance on both sides, is high, and so remarkable that it appears as if a light there, would be of less utility, than at any other place visited.

I am fully of opinion that a light on one of the most seaward of the Mingan Islands, would be of far greater benefit to the navigation, than on any point that could be selected at or in the vicinity of Cape Observation.

NORTH POINT.

This Point is at the narrowest part of the north passage, between the Island of Anticosti and the coast of Labrador, and lies directly south of the most western of the Mingan Islands.

It stands barely 14 feet over the level of the sea, and is so little remarkable as to be distinguished only by the change which takes place in the direction of the coast.

The Point is a limestone formation, covered, to a depth of 4 or 5 feet, with shingle, and wooded with trees of moderate growth.

The place fixed upon as the site for a light house here, is near the extreme point, and about 160 feet S. W. of water mark. Fresh water, timber for fuel and ordinary purposes, can be had on the spot, and limestone, of a good quality, is abundant at about 1½ miles to the southward.

A light on this point would be 43 miles from the eastern end, and 14½ miles from the western end of the Mingan Islands, and would be of great advantage to vessels, by enabling them to steer clear of the reefs, which extend out fully a mile from the shore, along the whole distance between the north and west points of the Island.

CAPE CHATTE.

This point is on the south side of the River St. Lawrence, about 97½ miles westerly of the west end of the Island of Anticosti, and 27½ miles in a south easterly course from the light house at Point des Monts. The coast in the neighbourhood of it, is described by Admiral Bayfield as destitute of harbors, but free from dangers, and that "when seen from "the eastward or westward, so that it appears as the extreme, can easily be distinguished, "being a round hill separated from, but of less height than the land behind it."

The most northern point of it is nearly 250 feet over the sea, the top is of small area, and the east and west sides have a declivity of about one in three, for a considerable distance downwards, and the whole is (with the exception of the north face of the cliff, which is bare and precipitous) wooded with spruce trees of large dimensions, between which is a thick growth of underbrush, closely matted together.

This point is believed to be the most advantageous position for a Light House, of any which can be selected in that vicinity, as it cannot be obscured in any seaward direction. The rock of which it is composed appears as if stratified, and resembles, in color and texture, the Cap Rouge stone, used for some of the best buildings in Quebec.

The place is difficult of access on all sides, but from a small bay on the west side, a road can be formed ¾ of a mile long at a moderate expense. by following a winding course in a south easterly direction for about one-half the height, thence bearing towards the proposed site of the buildings.

A small stream of fresh water was observed in a ravine, at about ⅓ of a mile from the point. Sand can be obtained at Chatte River, or St Annes Bay, respectively 3 and 10 miles to the eastward.

A Tower here of 25 or 30 feet in height, fitted up with a " second order" Lens Light, it is believed, would add greatly to the safety of the navigation.

MANICOUAGAN SHOAL.

The dangers of this shoal are so well known, through the descriptive charts of the River St. Lawrence, and the sailing directions which accompany them, that it is only deemed necessary to state, that adjoining the Peninsula of Manicouagan, for a distance of fully 18 miles, in a direction all but parallel with the river, the shore is bordered with this shoal, out to the distance of 2½ miles.

It always has been and justly continues to be a great dread to those in charge of sailing vessels, and has given rise to many exaggerated accounts of its dangers, in reference to which Admiral Bayfield remarks :

> " There is often a very heavy sea, particularly in a weather tide, off this shoal, but all the
> " terrific accounts which have been circulated, of strong and iregular eddies, in which vessels
> " will not answer their helms, during a fresh gale of wind, and can with difficulty be kept
> " from running into the bank or driving against each other, are entirely unfounded; but, with-
> " out exaggeration, a shoal which extends out so far from a low part of the coast, which is
> " difficult to make out at night, and which has such deep water close to it, must be sufficiently
> " dangerous to demand the utmost prudence of the seaman, without alarming him with
> " imaginary perils."

A person who resides on the Peninsula, informed us, that, within the three years prior to 1857, he had known 20 vessels to ground on this shoal, the greater number in clear weather; but all of them had got off safely, except one, which became a total wreck.

On considering the question of efficiently marking out the dangers, with which this shoal is beset, the formidable and subtle elements of wind and sea, to be contended with in effecting it, many difficulties present themselves.

The first idea which naturally occurs, is that of mooring a Light Ship on the most seaward part of the outer edge of it, but the question at once arises, could a vessel remain at its moorings in such a position during a strong gale? All the naval gentlemen with whom I have conversed on this subject, give it as their opinion, that it could not " weather" the first storm, and that the only place where a vessel could be moored safely in that vicinity, is near the mouth of Manicouagan river, about 3 miles to the eastward of the Peninsula, and 5 miles off the extreme point of the shoal.

This being the case, it is obvious that a light, so remote from the point of danger, could not, under any circumstances, be of much service to vessels; while there is reason to fear, that, on many occasions, it would be found a positive injury.

Another mode of effecting the object (which has been found successful in particular cases elsewhere,) suggests itself, in the use of an iron structure, connected with a " screw foundation," placed on the outer edge of the shoal, which, by presenting little impediment to the action of the waves or currents, might be considered suitable to such a locality. But this plan is at once met by the difficulties arising from floating ice, which, there is every reason to believe, would seriously endanger, if not prove entirely fatal, to that class of structure.

Hence, as a "dernier resort," it is proposed to erect a Light Tower on the extreme point of the Peninsula, which is opposite the most seaward point of the shoal, and distant 2½ miles from its outer edge.

On considering the subject fully, in connection with the many known difficulties with which it is surrounded, I am of opinion that the important objects contemplated, would be attained with greater advantage, by a suitable light on the point, than in any other way that circumstances admit of adopting. Although the shoal would not be as effectually marked out, as if the light was directly over it, still, it is believed a light at the place stated, would be decidedly preferable to a floating one, in any position where it could be successfully moored, and besides, (all other circumstances being assumed as equal) a light from a fixed tower, is not only superior, but may be regarded as absolutely safe and certain in its exhibition: whereas, the rolling and pitching of Light Ships, frequently deranges the lights, and their liability to drag anchor or break adrift, is notorious to the great risk of vessels depending upon them, as a guide past any hidden danger.

It is therefore respectfully recommended, that a Light Tower, 80 feet in height, be constructed on Manicouagan Point, and fitted up with a revolving light of the "second order," with such a distinguishing characteristic as, at the distance of over 7 miles, it will shew to the observer as a white light 2 minutes, and appear dark one minute, or any other definite proportions of time; but within the distance of 7 miles, the light will begin to shew dark red and white alternately, the red increasing in brilliancy, the nearer it is approached.

The locality can supply an abundance of sand, fresh water, and timber for all ordinary purposes.

Granite of a superior class can be obtained at a distance of between 5 and 6 miles, in what is called English Bay, at the mouth of the Manicouagan River.

METIS.

Several places were examined in this vicinity, with a view of ascertaining the most eligible position for a Light House, in the event of one being constructed here.

These were principally to the eastward, and northward, of Metis Point, on ledges of rocks standing from 4 to 6 feet over ordinary spring tides, but washed by the sea in case of storms.

A place was, however, ultimately selected on the highest and most seaward part of the point, lying between Little Metis and Grand Metis Bay, and possessing the advantage of being 60 feet over the level of the sea, and although not so far to the northwards as the reefs lying outside of the Bay, it would, in addition to its superior height, be in a position that cannot be obscured, in any direction serviceable to vessels. A light 50 feet in height at this place, would command a greater range than one 100 feet high would do, on the reef to the eastward.

The point is of a granitic character, and wooded on top sand can be obtained in either of the Bays to the eastward or westward of it.

A careful examination was also made of several points and islands on which small but important Lights are required, between the place last named and Quebec. But they are generally so well known, it is deemed unnecessary to say more than refer to them in the schedule under head of "Order of Construction."

2nd. Order of Construction, &c., &c.

To make suitable provision for the safety of the mariner, and seafaring traveller, by lighting up such headlands, and marking out such reefs and shoals—as likely to warn them of danger, and serve as a means of veryfying their course,—may be justly regarded as one of the most urgent of social duties.

But important although this be on our coasts, bordered as they are by precipitous and ragged rocks, sunken reefs, irregular currents, and exposed to all the fogs and tempests of a rigorous climate, their vast extent, and the comparative infancy of our commerce, scarcely warrants the hope that more can be done for many years, than, from time to time, to mark out some of the most dangerous points which lie directly in the line of trade.

Still, when doing this, it is of the utmost importance that some definite system should be adopted, not only in the characteristic distinction of the Lights, that may at present be established, but with a view to the future erection of others between them, when situated over 80 or 100 miles.

It should also be kept in view that it is the interest of the Province, to aid and facilitate the navigation of both outlets from the St. Lawrence to the Ocean.

For although Steamships generally pass through the Straits of Belle-Isle, and between Labrador and the Island of Anticosti, the greater number of sailing vessels use the channel lying South West of both Anticosti and Newfoundland.

Keeping these objects in view, the order of importance of the respective Lights recommended, is believed to be as follows:

1st.	Superior Class.	"Bird Rocks," Gulf of St. Lawrence. Cape Whittle, Cormorant Rocks, Labrador Coast of Gulf.
	Inferior do.	Brandy Pots' Island, River St. Lawrence. Long Pilgrims Do., Do. Do.
2nd	Superior Class.	Cape Ray, or Point Enragée, S. W. point of Newfoundland. Manicouagan Point, River St. Lawrence.
	Inferior do.	Great Island of Kamouraska. Bellechasse and Crane Islands.
3rd.	Superior Class.	Point Ferrolle, Western entrance of Straits of Belle-Isle, Newfoundland side. North point of the Island of Anticosti.
	Inferior do.	Point St. Laurent.
4th.	Superior Class.	North-east end of Belle-Isle, Eastern Entrance of Strait. Cape Chatte, River St. Lawrence.
5th.	Superior Class.	Cape Norman, Strait of Belle-Isle. Natashquin Point, coast of Labrador, nearly midway between Cape Whittle and Mingan Islands. Mecattina (Flat Island), about half-way between Western entrance of Strait and Cape Whittle.

3rd. Class of Materials, &c., &c.

The position in which light house towers generally are placed, and the small area o their bases compared with their height, lays them in a marked degree open to the influence of causes that lead to the destruction of artificial works, and therefore require, in their construction, a class of work peculiar to themselves.

Placed in situations subject to all the fury of hurricanes, the searching effects of rain storms, the constant moist atmosphere of the sea, and, in some cases, the action and shock of the waves, it is nowise surprising that, in the interior of structures thus exposed, should be found a damp humid air, especially where they have been erected subject to little or no other precautionary measures, than obtain in ordinary buildings in comparatively sheltered localities.

Cheapness of construction, however important in works generally, when allowed to trench on adaptation and permanency, in case of towers for leading sea lights at remote stations, on which life and property so much depend, may justly be considered as the reverse of economical. For although expediency, both in design and the class of materials used, must, in all cases, have its due weight, it is nevertheless notorious, that light-houses, built of inferior materials and workmanship, not unfrequently require an annua outlay to maintain them in a doubtful state of repair, that in the course of a few years amounts to full as much as would have made strong and durable structures in the first instances.

Three different classes of materials have been used for light house construction in this country, namely, wood, brick, and stone. In the United States and elsewhere, iron wrought and cast, has of late years been used in some cases for a like purpose.

Timber, as a principal material for light towers has, however, been confined to such places on our inland lines of navigation as are easy of access, and otherwise of less importance. They seldom stand longer than from 10 to 12 years without the lower part of them being renewed and the buildings otherwise repaired.

But the structures on the Island of St. Paul, in the Gulf of St Lawrence, (previously referred to) seem to lead to the conclusion that timber is more durable within the influence of a sea atmosphere, although, for anything known to the contrary, they may have been renovated to a like extent.

In situations where lights are really necessary to the safety of the navigation, wooden erections on which to place them are very objectionable, not only from their liability to decay, but from their inflamable nature leaving them open to casualities which the utmost care and vigilence of keepers may be unable to guard against, while their destruction involves not only the loss of the lighting apparatus, but were it to occur during the season of navigation, the sudden extinction of the light might prove fatal to vessels depending on it.

It is therefore believed that wood should not be used as a principal material in important structures of this kind.

The cases in which brick have been used, are those of the light houses recently erected in the Strait of Belle-Isle, on the west point of Anticosti, and Cape Rozier, where the exteriors of the building were faced with two tiers of the best class of English fire-brick, laid in cement mortar, with a view of preventing moisture percolating through the masonry or stone,—of which the interior part of the walls are composed,—as well as to save the expense of cutting stone, the risk of transporting them from a distance, and landing them on a bare unsheltered beach, on which a heavy rolling sea is constantly beating.

This mode of construction has not, however, been found sufficient to resist the penetrating effects of the rain storms, which beat with such force against these exposed constructions;—but whether resulting from the class of cement used, or the mixing of it with salt water sand, or from any other cause, I have no means of judging.

But, assuming the whole to be a good class of materials of their respective kinds, and that the work throughout the interior of the walls was generally well executed,—as the outer and inner faces of them appeared to be at the time of my visit in 1857,—the result leads to the conclusion that a similar plan of construction should not be adapted for works situated in equally exposed positions, in a like rigorous climate.

Brick, it is believed, may, in certain situations, be used advantageously for light-houses, but it is doubtful if the Gulf of the St. Lawrence comes under that head. A great objection to their use as an exterior facing, is the multiplicity of joints, some of which, even with the greatest possible care, may, in course of building, be left more or less open; moreover, bricks of the usual shape do not correspond with the circular form generally, and with good reason given to light towers.

It is not, however, intended by this to object to the use of bricks for the interior of such structures, on the contrary, it is believed they may be extensively employed for that purpose. But there are no situations for which brick can be recommended for exterior work, where stone of a good quality could not be used advantageously, both as regards strength and durability.

The best and most satisfactory class of ordinary light houses, as respects the interior when exposed to a marine atmosphere, in my opinion are those which have been constructed under the Light House Department of France. They are built in the most substantial manner possible compatible with economy, the inside being lined with brick, between which and the interior of the wall, is left a space to allow a free circulation of air, thus securing the buildings from dampness.

This mode of construction appears to me as the best adapted to remote stations on the Lower St. Lawrence, wherever a good class of building stone can be obtained in the vicinity. The existance or otherwise of which can only be ascertained with great care time, and an experienced acquaintance with materials of that nature.

The good qualities of building stone for such works, lie principally in their ability to resist humidity and frost, and not being liable to splinter or fracture readily. These requisites can only be found in stone of a fine uniform grain and compact texture. Weight is of greater importance than hardness. Subject to these conditions, the stone most easily and readily dressed should have the preference.

From what has been said in reference to the different places where light stations are proposed, it will be seen the choice of building materials are confined to lime stones and granite. (The latter Sir William Logan informs me should be termed "Gneiss.")

Limestone for the most part, although considered durable building stones, are liable to "draw damp," or allow moisture to pass through them, but, when sound, free from seams and of good quality, its use would be less objectionable on adopting and carrying out the plan above recommended,—provided stone better capable of resisting the action of the atmosphere were used for the pedestal under the lanterns.

Granite, or "Gneiss," would be difficult and expensive to dress, but its durability would almost "bid defiance to time itself."

After fully considering the subject, I am of opinion that whereever the rock on the spot is of a nature that admits of its being used for building purposes, even if the expense of preparing it should be triple the cost of what stone could be furnished for in a settled part of the country; still, its use would ultimately be found the most economical, as the delays and disappointments inseparably connected with the delivery of heavy and bulky materials at places so remote and exposed, would, no doubt, far exceed everything that could be calculated upon or even tolerated as a probable estimate of such expenses.

It is therefore recommended that in all cases where light towers are to be erected, at places difficult of access and remote from settlements, that the stone of the locality be fully tested, and if of a suitable class, adopted for their construction and prepared on the spot, granite or "Gneiss" not excepted.

In regard to iron as a principal material for light towers, it may be said that there are peculiar situations in which it, no doubt, is preferable to any other: such as on a reef, or shoal of sand, or gravel, or where a class of foundation other than that of screw piles, could not be formed short of an outlay that might, in some cases, prevent the improvement being undertaken.

The comparatively small expense of a foundation of screw piles, and the little obstruction it presents to the action of the sea, makes it well adapted to situations where a solid structure, even if it could be formed, would be liable to be undermined.

Cases of this kind, and positions so remote from suitable building materials, that the cost of transportation together with the uncertainties of landing them, would be found serious objections to their use (such as the "Bird Rocks" in the Gulf) form in my opinion exceptions in favor of iron.

But, for ordinary purposes, iron towers are considered objectionable, from their stability in all cases depending mainly on the strength of the materials and security of the fastening which maintain them in place, and further, when of great height, they are necessarily formed of many parts and joints which, however well and strongly connected at first, must, in course of time, become loosened from the vibration caused by the force of the winds and storms.

Moreover, the effects of salt, rain and water on iron, are not sufficiently known to admit of a reliable calculation being made of its durability, and, of the various methods that have been proposed and tried for its protection, we have little more than the testimony of patentees or of persons experimenting under their influence.

Keeping these facts in view, I beg respectfully to recommend the adoption of such a class of materials for the towers of all essential sea lights, as can be relied on for durability, and will only add that *weight* and *mass* has been preferred to *strength* as a source of stability, in the greater number of the best constructed light houses extant.

Before closing this Report, it is deemed proper to refer briefly to the improvements that have taken place in the mode of illumination, as it forms one of the most important elements of light house economy.

In 1759, the famous Eddystone light house, on the coast of Cornwall, was lighted with tallow candles, which were exchanged, in 1807, for Argand lamps and parabolic reflectors of plated copper; these were replaced in 1822 with the dioptric apparatus of Fresnel.

The "Tour de Corduan," on the coast of France, in 1780 was for the first time lighted with lamps and parabolic reflectors, and in 1822 the lenses of Fresnel were introduced, and gave it the high character which it deservedly bears. Since that time lens lights have been brought into use in all important lights on the coast of France.

The first dioptric light used by the Northern Light House Board of Scotland was established in 1835 on Inch Keith, in the Frith of Forth. In 1851, there were very few if any of the ordinary cotoptric lights in use on those coasts.

The second lens light used in England, is said to have been established in 1837 on Star Point in Devonshire; in 1851, the Trinity House had 24 first and second orders lights, besides a number of smaller lenses, and others have been and are continuing to be introduced.

In 1851 there were three lens lights in the United States, and in 1856 the number had increased to 310. At present no other description of light than lenses are adopted for new stations, or for the renovation of those already established.

In this Province (or at least belonging to the Government) there are ten lens lights, that is 2 first and 2 second order lenses on the lower St. Lawrence. And on Lake Huron and the Georgian Bay, there are 4 second, 1 third and 1 fourth order lenses.

Besides these, there are provided, but not in use, 3 second and 2 third order lanterns and lighting apparatus.

These statements are submitted with a view of shewing the importance attributed in this, as well as other countries to an efficient means of light-house illumination.

The lens apparatus is principally constructed of triangular shaped prisms and heavy plates of the best and most transparent glass, made, shaped and arranged on purely scientific principles, and placed in frames around a centre lamp of from two to four concentric burners, every ray of which is thrown into an intense beam of light of great brilliancy, visible, in some cases, at distances of fully 30 miles.

The lights are classed from the 1st to the 6th orders, and the apparatus for either may be obtained on the dioptric or catadioptric principle, that is to say, the lenses may be formed wholly of glass, or metal may be combined with glass as an optical agent.

The lenses when once placed cannot be disarranged unless wilfully, and although some mechanical skill and training are necessary for keepers of lights of the higher orders, still that is confined, in a great measure, to the management of the mechanical lamps, which, in the lower orders of lights, are so simple as to be readily understood by any one.

The United States Light House Board estimates the difference between the expense of a fourth order lens light, and one fitted with the usual number of reflectors and lamps for one year, at about sufficient to pay the first cost of the lens. This large saving is independant of the superiority of the lens apparatus in durability, and producing a more brilliant light.

With lenses of the fifth and sixth orders, the difference is still more favorable.

In lenses of the third order, which are superior in efficiency to the best reflector lights in this Province, they estimate the saving at not less than 3½ to 1,—a third order lens light in use every night throughout the year consuming only 183 gallons of sperm oil.

Being convinced of the superiority and economy of the Fresnel lens over that of the metallic reflectors, I submit that in all cases it be used in new light houses, and also introduced when extensive repairs are required to any of the old structures.

The light houses on the coasts of France and England are, with few exceptions, illuminated by means of colza or rape seed oil. In the United States and this Province, sperm oil is for the most part used for that purpose.

But the constantly increasing demand for the latter, and the annual diminution of the supply seems to require that efforts should be made to find a substitute for it. The best authorities, however, give it as their opinion that the colza is the only vegetable oil which can be advantageously used in light houses, and it is, in many respects, superior to spermaceti oil. A larger quantity of it is, however, required to produce a like effect, but the cost is a little more than one-half.

The colza oils are principally obtained in France and Holland, and rape seed oil in Russia.

Having thus hurriedly touched upon all the questions referred to in your letter of instructions, except that of cost, which no doubt forms one of the principal considerations, still it will be obvious from what has been already stated, and the very limited time at my disposal, that any opinion given on this matter, can be little more than mere conjecture.

The works to which special attention has been directed are, however, estimated as follows:

Light Tower, Cape Whittle, *Cormorant Rocks*, with Store House Keeper's
Dwelling, &c. &c. &c., on Wapitagun Island - - - - $120,000
" " Bird Rocks, with Keeper's Dwelling, Store House, Water
" " Tanks, &c. &c. &c. - - - - - - - - - - - - $70,000

All of which is respectfully submitted.

I have the honor to be, Sir, your obedient servant,

JOHN PAGE.
Chief Engineer Public Works.

J.

STATEMENT of the Fines and Damages imposed and collected in 1859, on the Beauharnois, Lachine and Chambly Canals.

BEAUHARNOIS CANAL.

AMOUNT of Fines and Damages collected by order of the Superintendent of the Beauharnois Canal, for the year 1859.

Dates.	Vessels' Names.	Master or Owner.	Amount. $	Amount. cts.	Remarks.
1858	Schooner C. Reeves	Of Detroit	50	00	To damage to Bridge Lock No. 9.
	Steamer New Era	Chrysler, Captain	2	50	" do to Ferry Scow No. 2
1859.					
May 23	Schooner British Queen	Thomas Wade, owner	2	00	" do to Bumping Post Lock No. 13.
" 28	Barge North Star	Masson, do.	4	00	" do to Bridge do No. 13.
" 30	Schooner Charles Walker	Winstow, do.	2	93	" do to Bridge do No. 10.
June 10	Steamer Welland	Renaud, do.	6	00	" Breaking Crab do No. 6.
July 1	Barque Allies	Fairwell, do.	15	00	" damage to Copings do No. 9.
" 2	Barge St. Zotique	" do.	2	00	" to Bridge over Waste Weir No. 10.
" 22	Steamer Banshee	Howard, Captain	2	46	" do to Foot Bridge Lock No. 8.
August 12	Barge St. Aimé	" "	3	46	" do do do No. 6.
September 13	Barge Rosa	Jassmin, owner	5	92	" do to Gates do No. 13.
" 21	Steamer Tom Dickie	Davies, master	3	00	" do do do No. 10.
October 12	Barge Nelly Blight	G. Williams, owner	60	00	" do to Bridge over Lock No 14.
" 15	Barge Deer	Deschamps, do.	7	00	" Fine and damage to Gates Lock No. 13.
" 23	Barge Rosa	Jassmin, do.	5	00	" Violation of Canal Regulations.
" 23	Barge North Star	Masson, do.	5	00	" do do do.
" 27	Propeller Indian	Jacques, Hooker, & Co., do	20	00	" Neglecting to close fire screen on smoke stack, as required by regulations.
November 13	Berge Glen Shee	McLean, do.	5	00	
" 14	Propeller Indian	Jacques, Hooker, & Co., do	3	70	" Violation of Canal Regulations.
" 26	Propeller Whitby	Jones & Black, do	400	00	" Damage to Gates Lock No. 11.
					" Breaking the Lower Gates No. 9.
		$	604	97	

Certified,

(Signed,) PIERRE LAURENCEL,
Superintendent.

J.

CHAMBLY CANAL.

AMOUNTS collected for dammages done to Canal, by different vessels, during the season of navigation, 1859.

Date.	Name of Vessels.	Master or Owners.	Amount. $	cts.	Remarks.
May 25	Barge Charlotte		2	00	Damage done to Bridge No. 7.
June 1	do British Queen	O'Sheldan, Captain	2	00	do fender of Lock No. 7.
" 8	do of Steamer Rose	McNaughton, do	6	00	do Bridge No. 4.
" 10	do Republic	W. Edwards, do	1	00	do Lock No. 6.
" 20		John Finlay, do	1	00	do done by him to bank. of Canada.
July 13	Boat Lousia	Welch, do	0	75	do to Gate Lock No. 9.
" 29	Barge of Steamer Erie,	Alcrow, do	4	00	do to Bridges No. 4 and 7.
September 6	" Louisa	G. Rolland, do	4	00	do Lock No. 5.
" 26	" Zoé of Steamer Ida	Smith, do	4	00	do Bridge No. 7.
" 30	" Canada of Steamer Utica	Montgomery, do	8	00	do Bridge No. 5.
October 1	" Zoé of Steamer Ida	Smith, do	3	00	do Lock No. 6.
" 6	" Beckwitte	Hunt, do	2	00	do Lock No. 8.
" 15	" Martha	Jones, do	3	00	do Bridge No. 6.
" "	" Ada	Berrer, do	1	00	do Lock No. 5.
" 17	" Monika	Lalmand, do	2	00	do Lock No. 5.
" "	" Canada	H. Naylor, do	15	00	do Bridge No. 2.
" 22		John Findly, do	...	82	do Lock No. 7.
November 8	Barge Wave	Pichette, do	1	00	do Bridge No. 8.
" 11	Steamer Rose	McNaughten, do	4	00	do Defender to Lock No.
" "	Barge St. Charles	O'Claire, do	5	00	do Bridge No. 6.
" 14	" Sophie	Jacques, do	3	50	do fender Lock No. 7.
" 26	" St. Mercel	Basqmien, do	2	00	do Bridge No. 7.
" 22	" Consolation	J. Chatel, do	6	00	do Bridge No. 1.
" 25	" Rainbow	Lahue, do	2	00	do Bridge No. 6.
October 25	" Marguerite	G. Rolland, do	7	00	do Lock No. 5.
		$	90	07	

(Signed) P, T. CHARTIER,
Superintendent. C. C.

J.

LACHINE CANAL.

AMOUNT of Fines and Damages collected by order of the Superintendent of the Lachine Canal for the year 1859.

Date.	Name of Vessels.	Master or Owner.	Amount.		Remarks.
				cts.	
June 4	One crib square timber	Mr. Dickson	4	00	Abandoned in channel, and obstructing navigation.
" 17	Schooner Queen of the Bay	Campbell	5	00	Damage to stone pillar of Wellington Bridge.
" 21	Crib flat timber	Taylor	4	00	Abandoned in channel and obstructing navigation.
July 14	Saw logs	Lager	4	00	do do do
" 15	Barge F. the Balla	Evans Brothers	1	00	Taking forcible possession of gates and lock of Lachine.
" 16	Steamer Boston	Meagher	14	00	Damage of masonry of pillar at Lachine Bridge.
" 26	Schooner Alida	Basset	5	00	Breaking bridge lamp Côte St. Paul.
August 15		J. St. Denis	20	00	Violating Canal Regulations.
" 25	Crib lumber	T. McGrath	4	00	Abandoned in channel and obstructing navigation
" 25	Crib round timber	C. Cavignon	4	00	Do do do
" 31	" square timber	C. Deschamps	4	00	Do do do
September 22	Schooner Eclipse	Calvin & Co	5	00	Breaking bridge lamps Brewster Bridge.
" 23	Schooner Caroline	Bissel	75	00	Damage to lower gates, Lock No. 1.
" 24	Scow Sophie	Rebeau	20	00	Damage to Brewster's Bridge.
" 30	Schooner Empress Eugenie	Dubbee	...	50	Damage to gas lamp at Bridge, Lock No. 2.
October 15	Barge Rapid	sold for	15	30	
" 30	Crib of timber	McDonald	4	00	Abandoned in channel and obstructing navigation.
November 9	Steamer Amity	McKellar	12	00	Damage to wing wall above Lachine Bridge.
" 18	Schooner J. G. Desbler	Gale	12	00	Damage to stone pillar at Lachine Bridge.
" 21	Barge Herbert	Blardeau	5	00	Casting anchor at entrance of Lock No. 4.
" 30	Crib timber	C. Deschamps	4	00	Abandoned in channel and obstructing navigation.
" 30	Crib square timber	Dickson	4	00	Do do do.
" 30	Drifting timber	McGauvern	4	00	Do do do.
	Total amount		229	80	

(Signed,) ALEXANDER BISSETT,
Superintendent.

K.

STATEMENT of Hydraulic Rents and leases on the St. Lawrence and Chambly Canals.

WILLIAMSBURG CANAL.

Description of Machinery.	Name of Lessee.	Run of Stones.	Amount. per annum.	
Grist and Flouring..........	Benjamin Chaffry, ...	6	$224	00
Grist, Flouring, and Carding,	William Elliott, ...	3	140	00
Grist and Flouring..........	John Molson, Junr.	4	140	00
Starch, Grist, &c.,..........	Benson Aspden, (12 runs,) pay for.	4	160	00
Grist..............................	C. C. Farren, (4 runs,)		"	00
	William McLaughlin,..................................	Wharf.	12	00
	John Walsh,..	"	44	00
	K. McPherson,..	"	12	00

CORNWALL CANAL.

Description of Machinery.	Name of Lessee.	Run of Stones.	Amount per annum.	
Grist and Flouring..........	Andrew Elliott,..	8	$240	00
do	John Harvey, (Hitchcock)	4	120	00
Saw,..............................	A. E. Cadwell,..	Saw.	120	00
	Hon. P. Vankoughnet, (Wm. Mattice,).......	20	600	00
Grist, ...	Benjamin G. French, ...	8		
	John Bell, ...(Water pipe	to Brewery)	10	00

LACHINE CANAL.

STATEMENT of Hydraulic and other Property leased on the line of the Lachine Canal,—shewing the names of the Lessees, date of Lease description of Mill, amount of Water Power, and yearly Rent.

Where Situated.	Names of Lessees.	Date of Lease.	Description of Mills.	Amount of Power.	Yearly Rent.
					$ cts.
Lot No. 1, Basin No. 2...	Frothingham & Workman.....	1st June, 1855.....	Store House..............	None........	392 00
E ½ No. 2, do. No. 2...	Frothingham & Workman.......	1st June, 1855......	Coal Yard	"	264 00
W ½ No. 2, & Lots 3 & 4.	Bartley & Gilbert......	....	Iron Foundry, and Steam Boiler Works, Machine Shop..........	8 Run of Stone......	1290 00
Lots 5, 6, & 7........	Bartley & Gilbert........	....		12 do.	
Do. No. 8	James Harvey.....	23rd Novr., 1846....	Store and Elevator........	4 do.	430 00
East ½ No. 9	James Harvey........	1st Jany., 1851.....	Wood and Lumber Yard........	None........	110 00
West ½ No. 9	Thomas Peck.	1st April, 1851.......	Rolling Mill and Nail Factory........	"	110 00
Lot No. 10..	Thomas Peck........	23rd Novr., 1846....		4 Run of Stone.......	430 00
" " 11	James McDougal........	23rd Novr., 1846.....	Flouring Mills........	4 do.	430 00
" " 12 & 13........	Ira Gould........	28th May, 1857.......	do.	8 do.	864 00
" " 14	Ira Gould	27th May, 1857......	do.	4 do.	432 00
" " 15	T. D. Bigelow & wife........	1st Jany., 1851	Nail Factory........	4 do.	430 00
" " 16	Hallam & Dunn	1st Jany., 1851.......	Rolling Mill........	4 do.	430 00
" " 17	Wm. Lyman & Co........	1st Jany., 1851.......	Oil Mills	4 do.	430 00
" " 18 & 19........	Grant, Hall & Co........	1st Jany., 1851.....	Flouring Mills and Stone........	8 do.	860 00
Dry Dock and Water Power	Geo. & Wm. Tate	1st Jany., 1851.	Foundry, Nail Factory, and Saw Mill........	4 do.	1000 00
St. Gabriel Lock........	John Young & Ira Gould........	1st March, 1851.....	Entire Surplus, Water & Hydraulic Lot..........	80 do. sublet.	1680 00
Côte St. Paul Lock.......	Wm. Parkyn	1st Feb., 1853.......	Entire surplus water........		1601 00
Island above lock No. 3...	Augustus L'Albé.......	1st Jany., 1851.....	Ship yard	None........	100 00
Basin No. 1	Hamilton & Gildersleeve........	1st May, 1859	Freight shed........	Do.	75 00
Basin No. 1	M. K. Dickinson........	1st May, 1859........	Freight shed........	Do.	60 00
At Grand Trunk Crossing	Morley & Lewis........	1st Oct., 1859........	Supply of water for tannery........	3 inch pipe........	10 00
Côte St. Paul........	Patrick Evers........	1st Jany., 1853.......	Farm........	None........	40 00
Land, &c., between old & new Canal at Lachine	Duncan Grant.	13th Oct., 1853.......	Ship yard........	None	80 00
			Total........	....	000 00
				Yearly Rental.......	11548 00

K.

BEAUHARNOIS CANAL.

STATEMENT of Hydraulic and other Property Leased on the Beauharnois Canal, shewing the Names of Lessees, Date and Term of Lease, Annual Rental, and amount of Rents accrued, &c.

Names of Lessees.	Property leased, &c.	LEASE.		Annual Rent.	TOTAL RENT ACCRUED.		Total Amount Paid.	Amount due to dates.	Paid in 1859.	REMARKS.
		Date.	Term.		Amount.	Dates.				
				$ cts.	$ cts.		$ cts.	$ cts.	$ cts.	
D. O. Pease	Wharf at St. Timothy	1st May, 1847	Pleasure of Dept.	20 00	250 00	To 1st Nov., 1859..	220 00	30 00	....	
Owen Lynch	do do do	1st May, 1847	do	20 00	250 00	do do ..	100 00	150 00	....	
Wm. Rodden	do do do	1st May, 1848	do	20 00	230 00	do do ..	60 00	170 00	....	
Louis Bergeron	Wharf at Big Basin	1st May, 1851	do	20 00	160 00	do do ..	50 00	110 00	....	Rent $10 for 1st year, & $20 after.
Owen Lynch	do do do	1st May, 1851	do	20 00	170 00	do do ..	20 00	150 00	....	
D. O. Pease	do do do	1st May, 1853	do	20 00	130 00	do do ..	100 00	30 00	....	
Julien Lovey	do do do	1st May, 1857	do	20 00	50 00	do do ..	20 00	30 00	....	
Isidore Larocque........	Wharf at Head Canal........	1st May, 1859	do	20 00	20 00	To 1st May, 1860..	20 00	....	20 00	1st year paid in advance.
J. Bte. St. Amour.......	do do do	1st May, 1859	do	20 00	20 00	do do ..	....	20 00	....	
Alex. Buntin (leased from F. F. Miller)...	Hydraulic, lots Nos. 1, 2 & 3, East side, lower Dam..	1st Jan., 1856	21 years	354 00	1239 00	To 1st July, 1859..	885 00	354 00	....	
Alex. Buntin (leased from Wm. Miller)...	Lot No. 4, East side, lower Dam	1st Jan., 1854	do	318 00	1749 00	do do ..	....	1749 00	....	
Stephen May	Lot No. 5	1st July, 1855	do	120 00	420 00	do do ..	360 00	60 00	....	Rent commenced 1st January, 1856.
F. X. Poitras	Lots 1 & 2, West side of Dam	1st Jan., 1856	do	240 00	840 00	do do ..	....	840 00	....	
Alex. Buntin	Ground for stone, North side of Canal, below Guard Lock..	1st July, 1859	Pleasure of Dept.	45 00	22 50	To 1st Jan., 1860..	....	22 50	....	
			Totals......$	1257 00	5550 50		1835 00	3715 50	20 00	
CHAMBLY CANAL.										
Chas. V. Pierce.........	Wharf at St. Johns...........	11 Mar., 1851	10 years	113 00	960 50	To 1st Oct., 1859..	....	....	....	
William Coate..........	Small plot of ground adjoining his Tannery at St. Johns	30 Mar., 1859	Pleasure of Dpt.	20 00	20 00	To 1st April, 1860	20 00	....	20 00	Paid in advance.
			Totals......$	133 00	980 50		....	....	20 00	

L.

EXTRACT FROM THE REPORT OF THE ENGINEER OF THE OTTAWA SURVEY.

To the Honorable John Rose,
Commissioner of Public Works.

I have the honor to submit herewith my Report upon the Ottawa Navigation, in accordance with instructions received from the Department of Public Works, and hereunto appended.

The questions upon which information is sought, and to answer which, the Survey has been carried on during the past year, are as follows :—

I. To determine the practicability of a navigation for vesssels of the larger class, between Montreal and Lake Huron, by way of the River Ottawa, and its tributary, the Matawan, Lake Nipissingue, and French River.

II. To ascertain what scale is best suited to the nature of the route.

III. To give a reliable estimate of the cost of the improvement.

In the first place, I have to report, that the distance between Montreal and the mouth of French River, on Lake Huron, (according to the plans furnished me by the Department,) is, following the line of navigation adopted, 430.76 miles.

That, of the distance, 351.81 miles are already a good natural navigation, and require no improvement, and that it is perfectly practicable so to improve the remaining 78.95 miles, as to convert the whole drain of waters into a first class navigation for steam vessels, and to reduce the length of canalling to 29.31 miles, or, exclusive of the Lachine Canal, to 20.82 miles.

Secondly, the scale of navigation attainable, and which I would recommend as best suited to the capabilities of this route, is calculated for vessels of one thousand tons burden, and has locks 250 feet long by 45 wide, by 12 feet depth on the mitre sills.

Finally, a careful estimate, resulting from a close instrumental Survey of all obstructed points, the details of which will be found hereafter, enables me to state, that the cost of this improvement, exclusive of interest, legal expenses, and damages, none of which, I have any means of ascertaining, will not exceed the sum of $12,026,351, distributed as follows :—

OTTAWA AND FRENCH RIVER NAVIGATION

	Distances.		Levels.		COST.
	Rivers and Lakes.	Canals.	No. of Locks.	Feet Lockage.	
Lachine Canal	....	8.50	5	43.75	not estimated.
Lake St. Louis	13.31	....	....	....	do. do
Saint Annes	....	1.19	1	1.00	469672
Lake of Two Mountains	24.70		.		
Carillon to Grenville	7.73	5.00	7	58.50	1649909
Green Shoals	....	0.10	....	....	136105
Ottawa River	55.97				
Chaudière and des Chênes	3.75	2.61	6	63.00	816733
Des Chênes Lake	26.69				
Chats	1.70	0.60	5	50.00	681932
Chats Lake	19.28				
Snows to Black Falls	18.32	1.05	11	104.00	1256840
River and Lake Coulonge	24.93	....	....	....	262414
Chapeau and L'Islet	4.85	0.14	2	18.00	243507
Deep River	33.58				
Joachims to Matawan	51.74	2.26	14	148.20	1757653
River Matawan	16.22	1.08	11	144.00	1162154
Summit level and cut	51.15	5.97	....	....	2160369
French River	47.52	0.82	7	77.00	886117
Add Engineering and Superintendence	....	....	....	....	574175
	401.44	29.32	64	665.70	12057680

Q

There are, exclusive of the Lachine Canal, 20.82 miles of Canals, costing $12,057,680, which is equal to $571,934 per mile of Canal. But the cost of the whole navigation from St. Annes to Lake Huron, 408.76 miles, is but a trifle under $29,500 per mile.

COMPARISON OF ROUTES—CHICAGO TO MONTREAL, *viâ* ST. LAWRENCE AND OTTAWA.

Names.	Miles.					Number of Locks.	Lockage.	Current.	Total Rise and Fall.
	Open Navigation.			Canals.	Total.				
	Lake.	Inland.	Total.						
	Viâ St. Lawrence.								
Lachine	....	....	....	8.5	....	5	43.75		
St. Lawrence and Welland	....	....	....	60.5	....	49	490.00		
	1145	134	1279	69.0	1348.0	54	534.75	26.5	561.25
	Viâ Ottawa.								
Lachine	....	....	....	8.05	....	5	43.75		
Ottawa	....	....	....	20.52	....	64	665.70		
	575	401.74	976.74	29.02	1005.76	69	709.45	21.4	730.85

Such are the results of the Survey. The manner in which they have been attained, will be described under the following general heads :—

I. Physical characteristics of the Ottawa.
II. Method of improvement proposed.
III. Character of work, and material in locks, dams, canals, &c.
IV. Scale of Navigation.
VI. General Remarks.

Ottawa, 4 January, 1869.

THOS. C. CLARKE,
Engineer, Ottawa Survey.

M.

CIRCULAR MAKING CERTAIN ENQUIRIES TOUCHING THE COURSE OF TRADE.

QUEBEC, 20th January, 1860.

SIR,—The Government of Canada has under its consideration the expediency of enlarging the Welland Canal, and I am desirous of obtaining certain information on the subject, before submitting the annual report of this Department to the Legislature. I therefore take the liberty of applying to you for the purpose of obtaining your views on the subject, and would respectfully solicit a communication of such facts in answer to the following queries, as your experience may enable you to give.

It is presumed that a large share of the trade of the Western Lakes, which formerly came through the Welland Canal, and was distributed from the various ports on Lake Ontario, is now directed to Buffalo and other ports of Lake Erie, and that one, if not the chief reason, is to be found in the fact that many of the vessels now employed are of too large a size to admit of their passing through the Welland Canal.

If you have the data within your reach, I should be glad to be favored with a statement on the following points:—

1st. At the time that the Welland Canal was completed in 1844, what was the number and average size of vessels engaged in that branch of the Trade, on Lakes Michigan, Huron, and Erie, connected with the movement of produce eastward, either viâ Buffalo or Lake Ontario?

2nd. What proportion of that Trade passed through the Welland Canal from the years 1844 downwards, distinguishing the several years?

3rd. What is the present estimated tonnage and average size of vessels engaged in the same trade? What proportion thereof passes through the Welland Canal?—and what proportion, from too great size, cannot pass.?

4th. How the receipts of produce from the Upper Lakes at Oswego, Ogdensburg, or other American Ports on Lake Ontario, kept pace as regards progressive increase, with those of Buffalo? and can you supply any returns showing the difference?

5th. If not, whether do you attribute the falling off mainly to the inadequate size of the Welland Canal, or to the enlargement of the Erie Canal, and the additional Railway facilities afforded for transit from Lake Erie to the sea board, or have no facilities to an equal extent been created from ports on Lake Ontario?

6th What proportion of the produce is carried in vessels too large to pass through the Welland Canal?

7th. Do you consider the Welland Railway calculated to attract the trade to the basin of Lake Ontario, or that the facilities it affords render less necessary the enlargement of the Welland Canal?

8th. Looking at the class of vessels now in use, and likely hereafter to be employed on Lakes Superior, Michigan, and Huron, in connection with the direct Atlantic Trade, to what size and depth would you consider the Canal should be increased?

I have the honor to be,

&c., &c.,

(Signed) JOHN ROSE,
Commissioner.

The following Extract is from the Report of the British Consul, at Buffalo, to Her Majesty's Government,—accompanying which is an accurate summary of the tonnage of the Vessels on the Lakes and River St. Lawrence, obtained by him from the Chairman of the Board of Lake Underwriters.

[Copy.]

Extract from Mr. Donohoe's Trade Report, for the year 1858, *forwarded to Her Majesty's Secretary of State for Foreign Affairs, the* 18*th of February*, 1859.

"There is one question of the greatest importance to British interests on this Continent, viz: The carrying Trade of the West, which is a subject I cannot pass over without "making some remarks, and affording the complete statistics that I have had it in my power "to collect. When I speak of the West, I allude to the vast grain-producing region comprised in the states of Wisconsin, Michigan, Iowa, Indiana, Illinois, Ohio, Missouri and "Kentucky, with the vast tract of country which stretches Westward to the Rocky "Mountains, and which, though at present it produces but little, and is but partially "populated, will one day be dotted over with the thriving farms of industrious husbandmen."

" I have no reliable statistics before me, to point out the quantity of grain produced " in the West, but I annex a table shewing the total exports of Wheat, Flour and Indian " Corn, from the United States, for the year ending 30th June, 1857.

	WHEAT.		FLOUR.		CORN.	
To	Bushels.	Value in Doll's.	Barrels.	Value in Doll's.	Bushels.	Value in Doll's.
England........	8560084	13435325	1027066	6905769	4184279	2927883
Scotland........	1019529	1544787	121150	837149	164704	114684
Ireland.........	138863	232455	22272	154029	426223	298435
Total Gt. Brtn.	9718476	15212567	1170488	7896947	4775206	3341002
To other Countries..........	4851855	7028290	2541565	17985369	2730112	1843664
Total Export.	14570331	22240837	3712053	25882316	7505318	5184666

" This table will fully answer my purpose, as it not only shows the quantity that " reaches Great Britain, but likewise the total export of grain from the United States. " There are two great natural channels by which this vast extent of produce should reach " the sea-coast for embarkation, viz :—

1st.—The Mississippi River, and

2ndly.—The St. Lawrence Route.

" It is to the latter that I should particularly wish to call attention, as that route " passes through a British Colony, and it is of the utmost importance to Canada to secure " as large a proportion as possible of this carrying trade. The quantity of grain exported " from the United States to Canada during the year ended 30th of June 1857 was as " follows :—

WHEAT.		FLOUR.		CORN.	
Bushels.	Value.	Barrels.	Value.	Bushels.	Value.
1655641	$1867457	118857	$717245	1161088	$673989

" Of which probably a large proportion was shipped to Great Britain; though by the " Trade Returns of 1857 laid before the Parliament of the Province, I see that the quan- " tity of grain exported seawards by the St. Lawrence during the year ending the 31st " December 1857 only amounted to 633,905 bushels of Wheat, and 265,848 barrels of " Flour. It does not appear that any Indian Corn was exported, and, as the quantity " entered for home consumption nearly tallies with the total export of that article from the " United States to Canada, we may fairly presume that there is little or no exportation of " Indian Corn from the Province, which I believe does not produce any, as the climate is " unsuited to its growth.

" I have no later statistics as to the export of Grain by the Mississippi River, than " those contained in the Report of Her Majesty's Consul at New Orleans, for the year " ending August 1856, by which I see that from that port, 692,000 bushels of " Wheat, 99,862 barrels of Four, and 2,935,000 bushels of Indian Corn, were shipped to " Great Britain, with a total export of 1,554,000 bushels of Wheat, 729,500 barrels of " Flour, and 4,190,000 bushels of Corn.

" I should suppose that a much larger quantity was forwarded by that channel dur- " ing 1857, and 1858, when the total quantity exported from the United States, was so " much greater. I do not, however, place much value upon the competition of the Mississi-

"pi River, as far as the export Grain trade with Great Britain is concerned, in conse-"quence of the geographical position of its mouth; but with increased facilities for tran-"sit at the Isthmus, I have no doubt that the Trade with the Pacific Ports would be "enormous.

"It is between Canada and the State of New York, that the struggle for the carrying "trade of the Western Country will be fought, and if Canada does not display the greatest "possible activity, she will have to succumb to her Southern rival. It is the competition "of the Erie Canal from Buffalo, to Albany, on the Hudson River, and the branch of the "same Canal, from the Port of Oswego, on Lake Ontario, which most directly enter into "opposition with British interests in the carrying trade. The Legislature of the "State of New York,—fully alive to the importance of directing the largest possible "share of this trade through the State, have from time to time, appropriated considerable "sums of money towards widening and deepening the Erie Canal, and the recent intro-"duction of Steam Canal Boats, which are able to make the passage from Buffalo to New "York, in from five, to six days, carrying a heavy load, renders still more difficult the "competition of the St. Lawrence route, and calls for the utmost energy on the part of the "Government of Her Majesty's North American Provinces, and there is no sacrifice too "great, that should not be made to obtain the grain export trade for its natural outlet—the "St. Lawrence River.

"There are two ways which would tend materially toward this desirable end: one by "the construction of a ship canal from some port on Georgian Bay, Lake Huron, to a port "on Lake Ontario: the other, by the widening and deepening of the Welland and St. Law-"rence Canals. I understand that a survey in connection with the former project was "made some years ago, but I have not been able to get any particulars about it. Against "the latter project I do not think anything can be urged, and for either undertakings "money could, I should think, be found. The attention of the Canadian Government has "been recently called to the importance of the Western carrying trade, for I have before "me a 'Report of a Select Committee appointed with power to inquire into the past and "present course of trade between the lakes and the seaboard, and between the different "Atlantic ports, in America and Great Britain &c.' This Report, which is dated 27th "July, 1858, affords much useful information upon the subject, and I see that the Committee "recommend 'that the St. Lawrence Canals should be immediately deepened to admit vessels "of the same draft of water as those which pass through the Welland Canal and that a "daily line of screw steamers of not less than 2,000 tons burden with a speed of from 10 "to 12 miles an hour be put on between Liverpool and Quebec to connect with another "line of steamers of 1,000 tons burden to the Welland Canal and Railway, Toronto, and "Hamilton, intersecting a line of steamers on Lakes Erie and Huron to Chicago.'

"This is a most important step in the right direction, and I hope it may be carried "out, but if a Ship Canal could be constructed between Georgian Bay and Lake Ontario, "so as to enable large vessels to make the passage direct from Chicago and other Western "Ports to Quebec, avoiding the St. Clair flats between Lakes Huron and Erie, that indeed "would give the whole of the Western trade to the St. Lawrence route, and I think there "can be no doubt that then direct Shipments from the West to European Ports would be "found to afford a profitable remuneration to the Ship owners.

"There is one fact that must not be lost sight of, and that is that the State of New York "will throw every impediment in her power in the way of the Western trade being diverted "from her Canals; but the rising and rapidly increasing political influence of the Western "States will act as a counterpoise, and be thrown into the scale to obtain for her citizens "the quickest return for their produce, even should it be necessary to use a British Chan-"nel to reach a speedy market. There is some difficulty in obtaining information as to the "traffic of the Railways of the State of New York, which enter into competition with the "Canals, as the Directors of these lines are unwilling that the particulars of their business "should be known, fearing that the State finding that they draw off too much of the goods "traffic from the Canals, may affix tolls which would interfere much with their carrying "trade. Railways may do a large business in the carriage of some classes of freight, such "as Flour, but cannot successfully compete with water carriage in the transportation of "Grain in bulk. Their traffic, however, when the navigation closes, must always be very "great.

"The Erie Canal carried hence in 1857, 88,092 barrels of Flour, 6,673,827 bushels of "Wheat, 5,001,263 bushels of Indian Corn, and 905,814 bushels of Oats, and though all "this quantity did not reach the seaboard, there can be no doubt that a very considerable "portion had its ultimate distribution there. The Oswego Canal carried during the same "period 301,530 barrels of Flour, 2,728,429 bushels of Wheat, 1,850,394 bushels of Corn, "and 12,257 bushels of Oats.

"When we compare these figures with the transit returns by the St. Lawrence River, "we can at once see how insignificant is the quantity which reaches the seaboard by the "natural channel of exit, and it will be well to bear in mind that the navigation by way of "Quebec, commmences as early and continues as late as by the Erie Canal and the Hudson "River.

"According to the Canadian Report referred to before, the proportion of the Lake "Trade diverted to New York, is six and one-half million tons, to about half a million "forwarded to Quebec, and the comparative prices of freight from Chicago to the seaboard, "average from 25 to 50 per cent. in favor of the St. Lawrence.

"That the Canadian people are fully alive as to the importance of this Trade, there "can be no doubt: and I expect to see active measures taken by the Government of the "Province, during the present year, so as to secure at least a better share of the transit "trade of the Western States than Canada has hitherto enjoyed."

[Copy.]

"Your letter of enquiry of the 28th inst. at hand, I enclose you the correct statement "of the tonnage of the Lakes as taken from our Marine Register up to last November. "Since then it has been in some measure reduced by losses, and but little added to it by "construction. Our Registration of Tonnage is intended to be quite correct, probably not "2 per cent of the whole tonnage of the Lakes is left out; what I give you is the compilation of the work of 10 men (surveyors) who have personally examined all these crafts, at "least once each year. There are many barges on the St. Lawrence, and some open boats on "the Lakes used in carrying coarse articles, not included in this statement.

"Your 2nd enquiry as to 'what proportion of these vessels draw above 8½ feet of "water?' can only be answered by estimate or computation.

"We have on file in the office of the Board of Lake Underwriters here a detailed printed and written survey of each of these vessels giving their dimensions;—from an "examination of these, and from my general knowledge of the vessels navigating the Lakes "acquired during a period of 21 years' personal experience, I should say that at least 90 "per cent of the whole tonnage drew over 8½ feet of water. Any further information I can "give you on this or any other subject within my power, please to command me. I shall "be most happy to serve you."

A Summary of the Tonnage on the Lakes and River St. Lawrence, October, 1859.

	No. of Vessels.	Tonnage.	Total Tonnage.
United States.			
Lake Steamers	41	39,477	
River Steamers	16	2,324	
Tugs [side wheel] River	9	1,825	
Ferry Boats [side wheel]	2	122	
Lake Propellers	105	53,749	
River Propellers	7	550	
Lake Tugs [Propellers]	35	4,347	
River Tugs [Propellers]	31	1,722	
Ferry Boats [Propellers]	2	568	
			104,684
Barques	43	17,515	
Brigs	79	22,860	
Schooners	832	17,4258	
Sloops	4	152	214,785
American Vessels	1,206	Tonnage	319,469
Canadian.			
Lake Steamers	22	10,188	
River Steamers	25	7,859	
River Tugs [side wheel	12	3,322	
Ferry Boats [side wheel]	3	2,288	
Lake Propellers	14	4,285	
Lake Tugs [Propellers]	3	357	
River Tugs [Propellers]	3	117	
			28,416
Barques	18	5,946	
Brigs	15	3,630	
Schooners	210	32,498	
Sloops	4	244	42,318
Canadian Vessels	329	Tonnage	70,734
Grand Total	1,535		390,203

OSWEGO, February 20, 1860.

HON. JOHN ROSE,
Commissioner Public Works.
QUEBEC, CANADA EAST.

Dear Sir,—Your favor of the 20 ult. was duly received.

The Hon. Alvin Bronson, of this city, who has been long and extensively engaged in the commerce of the Lakes, has given your communication a careful perusal, and has prepared a reply to the general tenor of the same, a copy of which I herewith enclose, and to which I beg leave to call your attention.

To your several interrogatories I respond as follows:

Firstly.—At the time the Welland Canal was completed, in 1844, the average size of vessels engaged in that branch of the trade was of the burthen of about eight thousand bushels of wheat.

Secondly.—As to what proportion of that trade passed through the Welland Canal from the year 1844 downwards, I refer you to Schedule marked " A, " hereto annexed.

Thirdly —About one thousand craft are now engaged in the trade of the Lakes, one-fourth of which cannot pass through the Welland Canal. Three-fourths of all the propellers on Lakes Erie and Michigan are too large to pass the Canal.

Fourthly.—As to the receipts of produce from the Upper Lakes at Oswego, Ogdensburgh, and other American Ports on Lake Ontario, keeping pace as regards progressive increase with those of Buffalo, I refer you to Schedule marked " B," hereto annexed.

Fifthly.—A large proportion of the falling off in the receipts at the Ports on Lake Ontario, is due to the small size of the Welland Canal Locks; but the enlarged Erie Canal, with low tolls, controls a large bulk of trade. If, however, the Welland Canal could accommodate the large Class Propellers, it is fair to suppose that much of the lost trade would return to Lake Ontario.

Sixthly.—Fully one-half the produce of the West is carried in vessels too large to pass through the Welland Canal.

Seventhly.—The Welland Railway will not materially increase the traffic of Lake Ontario, or get back the trade already lost, and does not render less necessary the enlargement of the Welland Canal.

Eighthly.—It is the opinion of the Board of Trade of Oswego, that in view of the present class of vessels now in use, and those likely to be hereafter employed in moving the products of the Great West, in connection with the direct Atlantic Trade, that the size of the Welland Canal Locks should be increased to 225 feet long and 40 feet wide, and that the depth of water should be not less than 12 feet.

I have the honor to be,
Your obedient servant
(Signed,) O. H. HASTINGS,
President of the Board of Trade.

SCHEDULE A.

Statistics for the 2nd Query.

STATEMENT showing the Shipments of Grain (Flour reduced to Wheat) from Chicago, and Receipts of Flour and Grain at Buffalo and Oswego for a series of years :—

	Shipments from Chicago.	Receipts at Buffalo.		Receipts at Oswego.	
	Grain.	Flour.	Grain.	Flour.	Grain.
1836		139,178	543,461	No record previsious to 1848.	
1837		126,805	550,660		
1838	78	277,620	974,751		
1839	3,678	294,125	1,117,262		
1840	10,000	597,742	1,075,888		
1841	40,000	730,040	1,852,325		
1842	586,907	784,308	2,015,898		
1843	688,907	917,517	2,055,025		
1844	923,494	915,030	2,335,568		
1845	1,024,620	746,750	1,848,040		
1846	1,599,819	1,374,529	6,493,522		
1847	2,243,201	1,857,000	9,868,187		
1848	3,001,740	1,249,000	7,396,026		4,312,329
1849	2,279,111				4,258,298
1850	1,830,938	1,103,039	6,637,[illegible]04		4,619,127
1851	4,646.291	1,258,224	1[illegible],[illegible]49,661	389,929	4,619,127
1852	5,873,141	1,299,513	13,892,947	272,343	7,867,408
1853	6,412,181	975,557	11,078,741	391,245	8,383,671
1854	12,932,320	739,756	18,533,455	167,267	5,592,903
1855	16,633,700	936,761	20,788,473	224,643	8,959,176
1856	21,583,221	1,126,048	20,123,667	202,930	12,632,305
1857	18,032,678	845,953	15,348,930	101,363	7,736,057
1858	20,035,116	1,551,590	19,712,727	96,663	10,839,125
1859	16,663,795	1,415,482	14,473,913	64,951	7,021,067

The receipts from Canada are included in the above.

SCHEDULE " B. "

Statistics for the 4th Query.

STATEMENT showing the shipments of grain (wheat reduced to flour) over Lake Ontario, embracing the receipts at Oswego, Ogdensburgh, Cape Vincent, Genesee River, and Montreal, for the last four years, together with the receipts of grain alone at Buffalo during same periods:

	Shipments over Lake Ontario.	Receipt at Buffalo.
1856	23,700,382	20,123,667
1857	18,044,354	15,348,930
1858	21,872,991	19,712,727
1859	14,800,000	14,473,913

The above includes the movement of Canadian produce.

O. H. Hastings, Esq.,
President of the Oswego Board of Trade.

Sir—I have perused with care the document from the Canadian Board of Public Works, dated at Quebec, seeking information in relation to the contemplated enlargement of the Welland Canal, and beg leave to say that the statistics of trade called for, may be better obtained through other sources, where records of Commerce have been preserved; but I will give to the Commissioner of the Board of Works, through your Board, such general information, and without much method, as I have acquired from my business operations on, and in connection with this work, from its inception to the present time.

First premising that statistics of Trade, however elaborate, can afford but poor data to guide the judgment or action on this subject, owing to the almost numberless rival improvements, both contiguous and remote, which have sprung up since this work has been in operation, and owing still more to the fickle and ever changing policy of legislatures, Canal Boards and Corporations, in the administration of these rival works.

For example, our Legislature and Canal Board started with a revenue tariff, and pursued it, with occasional modifications, for many years, and until the Welland Canal and St. Lawrence threatened competition, when the revenue tariff was superseded by a protective tariff. Again, when Railroads were multiplied in our State and relieved from Canal tolls which their charters imposed, the protective tariff was pushed still farther, until revenue is almost annihilated, and the question now presents itself, and is one of most difficult solution, whether our Canal debt shall be redeemed by general taxation, or whether the revenue tariff shall be restored, fortified, and protected by Canal tolls re-imposed upon Railroads.

To complicate this subject still more, and baffle all calculations for the future, the long lines of Railroads have adopted the policy of competing with each other, and with the Lake and Canal Channels, for the trade of the Mississippi Valley; transporting its products and merchandise almost gratuitously, requiring the States and Provinces from whom they derived their franchises, under promise of public benefit, to remunerate them, through high charges on *their* products and merchandise, for their sacrifices to secure these distant customers.

The *theory* is, that the trade of their own States and Provinces belongs to them, and will bear any amount of imposition, and that all trade derived from the far West is clear gain. The *effect*, if pushed to its limit, will be to transfer the wheat fields and flouring Mills from the East to the valley of the Mississippi converting the State of New York and Canada West into grazing farms, with no other products than butter, cheese, wool, and animals that may be driven to market on foot, leaving the Railroads to make the most of their Western Customers, having killed the Goose for the Golden Egg. A system so vicious cannot last. It must be ended by popular indignation or the ruin of the roads.

Competition.

Premising this much on the statistics of trade, I proceed to discuss the main subject of Canal enlargement; And first, I assume, as a self-evident proposition, that large lakes and long rivers, as channels of general commerce, are superior to artificial channels, whether Canals or Railroads, involving, as they do, a heavy outlay for construction, repairs, and superintendence.

In point of prices for transportation of commodities, beginning with the cheapest, the different channels may be classed as follows :

First.—Ocean navigation.
Second.—Lakes, Rivers, and Sounds.
Third.—Canals, Ship and Boat.
Fourth.—Railroads.

A few comparisons between prices for transport, on Lakes, Rivers, and Sounds, with those of Railroads, will confirm this proposition, and suffice for the purpose of the discussion.

The current price for transporting a barrel of flour from Albany to Boston by Railroad is 30 cents, the distance 200 miles. By water, a voyage made up of River, Sound, and Ocean, usually broken at New York, 15 cents, distance 600 miles. From Albany to New York, the usual price of a barrel of flour by river is 7 cents, distance 150 miles. By Railroad in winter, 30 cents. In summer there is no competition, and therefore no price; but taking the Western Road from Albany to Boston for data, the charge in summer by rail should be 22½ cents against 7 cents by water.

When a chain of roads has combined to transport beef from Chicago to Boston (Nov. 23rd., '59) at 44 cents per 100lbs., they have pro-rated or apportioned this charge as follows :

Allowing the Michigan Central from Chicago to Detroit, - - -	283 miles	14 cts.
Lake Erie, Detroit to Buffalo - - - - - - - - - - - - -	350 "	5 "
New York Central - - - - - - - - - - - - - - - -	298 "	15 "
Western Road to Boston - - - - - - - - - - - - - -	200 "	10 "
		44 cts.

Again (Nov. 23, '59) Beef, from Chicago to New York 100 lbs for 39 cents, as follows :

Michigan Central, from Chicago to Detroit, - - - - - - - -	283 miles	13 cts.
Lake Erie, Detroit to Buffalo, - - - - - - - - - - - - - -	350 miles	5 "
New York Central and Hudson R. R. Road - - - - - - - -	500 miles	21 "
		39 cts.

The shore roads beyond the Lakes and beyond the Mississippi, where severe competition is not encountered, usually charge about 10 cents per bushel per 100 miles for the transportation of wheat, whereas the lake craft transport a bushel of wheat from Chicago through four of the great Lakes for 10 cents, exclusive of the Welland Canal charge, of say 2 cents, a distance of more than 1200 miles.

These cases are sufficent to dispose of the subject of comparative cost of these two modes of transportation.

There is another important element in this rivalry for the trade of the valley of the Mississippi, consisting in the topography of the country, or locality of the lakes.

Lakes Superior, and Michigan, bound this valley on the East, and stretch from a high latitude, many hundred miles south, parrallel to the river, and almost to the point where Eastern and Northern markets cease to attract the trade from the river and gulf. The Railroads, therefore, to divert this trade from its natural and cheap channels, the Lakes, must perform a detour around them, or submit to have their chain broken, and their freights subjected to a *short* and therefore comparatively an expensive voyage across them.

The character of short voyages will be explained in another part of this paper. These facts make it apparent that Railroads cannot compete successfully for this distant trade, and it would seem the part of wisdom to yield the conflict which must involve heavy expenditures, which must provoke reprisals, and end in a loss of a portion of their legitimate trade, and in cutting down their tariff on the residue.

Railroads have their legitimate field, which, under judicious administration, will sustain them. It is their office to conduct the trade from point to point, between these natural and cheaper channels, as between the Mississippi and the Lakes, and between the Lakes, the St. Lawrence, and the Atlantic markets.

The roads are entitled to the freight traffic contiguous to their lines, and beyond the attraction of the cheap and natural channels; they may command the valuable and perishable goods, that demand celerity and dispatch, and will *monopolize* the passenger and the winter traffic. Such will be the relative condition of these rivalries when the battle shall have been fought out and commerce shall have found its appropriate and natural channels, whatever fate may await the bond and stockholders. Canals, either boat or ship, were never projected or constructed as rivals to natural channels, but as tributaries to feed, or links to connect and extend them. Thus, the St. Mary's, the Welland, and the St. Lawrence Ship Canals connect the Lakes with each other, and all with the Ocean.

While the boat canals of New York, connect the Lakes with tide water; and the Ohio, Indiana, and Illinois Canals, connect the Lakes with the Mississippi; still these Canals co-operate with, and fortify, great rival routes for commerce, as the St. Lawrence, the Hudson, and the Mississippi. Though laudable competitors, and ministering to the welfare of the country at large, yet their influence upon the work in hand must not be overlooked.

After this exposition it is hardly necessary to express the opinion that the Lake route, with the Welland Canal suitably enlarged and improved, can maintain a successful competition with all others.

Welland Railway.

It may be prudent to restrict or limit the enlargement of the Canal in some small degree, in consideration of the services which the railway may perform by lightening overloaded vessels, when for short periods as sometimes happens, the waters of the Lakes rule high, and the harbors allow deep loading, or when a vessel of extraordinary size may load for a sea voyage. I am of opinion that Indian corn, an important article of commerce, will bear an extra charge for the benefit of being elevated, transported and spouted to another vessel, midway of the voyage.

I do not believe the railway can be made to feed lines of vessels on the upper and lower Lakes, either with merchandise or agricultural products, and for the following reasons.

The price of freight depends greatly on the continuity of the voyage; the long voyage is the cheap one, compared to distance. The delay and expense of loading and discharging constitute an important item in the expense of the voyage, and is the same whether the voyage is long or short.

For example; a wheat laden vessel at Chicago, charging 7 cents per bushel to Detroit, would be amply paid for extending her voyage to Buffalo, or the Welland Canal, by an addition of 2 cents per bushel, and for another cent through Lake Ontario excluding Welland Canal charges; the most distant point, therefore, has the strongest attraction for trade. Hence a long voyage broken up into two short ones would enhance the cost of transport without adding much, if at all to despatch. A new voyage across Lake Ontario would involve a charge of three or four cents per bushel on wheat, instead of one cent for a continued voyage.

Hence the *expensive short voyage* across Lake Michigan connecting railroad traffic.

Size of Enlargement.

Great diversity of opinion prevails both among practical and scientific men as to the size of lock and canal best adapted to the wants of this trade; some gentlemen whose opinions are respected, advocate a lock the size of the St. Mary's to pass the large side-wheel passenger boats. I am of opinion on the contrary, that the work should be adapted to the freight trade of Propellers which will of course meet the wants of the sail vessels, both of which will probably continue to share this trade in nearly equal proportions.

As the work increases in size, the cost increases in a rapid ratio,demandinglarger amount of funds, and longer time for completion; and when breaks occur, they are more destructive in their effects upon the work and the region adjacent.

If too small again, though more easily and quickly completed, the object is not obtained of meeting rivalry effectively.

I am of opinion that a lock 225 feet in length, with 11 feet water on mitre sill, would be a judicious size; 35 or 36 feet in width would be sufficient, were it not deemed exped ient to conform them to the St. Lawrence locks 45 feet in width, which would serve to pass small side wheel steamers; nor is there any strong objection on the score of feeding or of current. The feeders are copious, and at short distances from the locks; besides the large volume of trade is in the direction of the current. Since the locks were enlarged in 1844, the tonnage of our vessels and their carrying capacity has been steadily increasing from a burthen of eight or nine thousand bushels of wheat to fifteen or sixteen thousand, the usual burthen for modern built vessels.

During this rapid and great increase in size of vessels, the depth of water in the canal and lock has been increased but one foot from 9 to 10 feet. The largest class of vessels are not however passed with the ease and facility which ought to attend them.

Most of the harbors of the Lakes, as well as the St. Clair Flats, require frequent and considerable expenditures to give 11 feet of water, except in periods when the lakes rule high; these periods are not frequent or long continued. There may be instances in which Propellers are loaded beyond 11 feet, but these are exceptional cases.

Experience has proved that long and flat vessels can navigate the ocean with safety and success, and that the centre board or sliding keel is a pretty good substitute for the standing keel.

Experience proves also, that large vessels are most profitable, and there are isolated cases of vessels passing regularly through the Welland Canal with 18,000 bushels of wheat, sail vessels, bark or schooner rigged.

Respectfully your obedient servant,
(Signed) ALVIN BRONSON.

OSWEGO, Feb. 16th, 1860.

WELLAND CANAL OFFICE,
St. Catherines, February 22nd, 1860.

HON. JOHN ROSE, Com. Public Works, Quebec.

Sir,—I submit the following information in answer to the queries contained in your letter of 20th January last, addressed to the respective Boards of Trade of Oswego, and Ogdensburgh.

1st. "At the time that the Welland Canal was completed in 1844, what was the num-"ber and average size of Vessels (engaged in that branch of Trade) on Lakes Michigan, "Huron, and Erie, connected with the movement of produce eastward, either via Buffalo or "Lake Ontario."

Answer.—The enlargement of the Welland Canal was opened to the Trade in the spring of 1845. The number of Sailing Vessels on Lake Erie, and above the Welland Canal, was in 1844 as follows, viz:—

109 Vessels, over 100 Tons each, with capacity of - - - - -	16,173	Tons.
118 do, under 100 Tons each, do do - - - - -	8,388	do.
6 Propellers with capacity of - - - - - - - - - - - -	1,417	do.
1 Barque, do do - - - - - - - - - - - -	377	do.
234 Vessels and Propellers, with capacity of - - - - - -	26,355	do.

Of the above there passed through the Welland Canal in 1844, 42 Vessels, capacity 4001 Tons.

Lake Ontario Vessels passing Welland Canal..

119 Brigs and Schooners with capacity of, - - - - -	15,844	Tons,
8 Propellers, - - - - - - - -	880	do
127	16,724	Tons.

In addition to the foregoing there were:

8 Large Brigs that could not be passed through the Canal in 1844, of 4,050 tons burthen.

The foregoing list is exclusive of Passenger Steamers navigating either or any of the Lakes.

By the enlargement of the Canal all of the above vessels and propellors, viz: 361, were enabled to pass through it, except 8 large brigs on lake Ontario, one of which was afterwards so altered as to navigate the Canal.

2nd. What proportion of that trade passed through the Welland Canal for the year 1844 downwards, distinguishing the several years?

Answer.—The following Table shows the proportion of that trade that has been passed through the Canal; respecting the data of the whole trade, I have no information.

	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.
Vessels & boats, all kinds	4276	3610	3905	4214	3280	2278	4761	5693	6162	6714	5863	6779	6766	6239	5700	3758
Passenger	....	....	....	....	2487	1640	1938	4758½	6543	19631	5638	15276	17424	17232	10599	1074
Ton. Freight.....	228571¾	243741¼	318095	343852	307611½	351596¼	399600	691627½	743060	905518	797210	849333	976705	901072	855112	1012201¼
Tonnage, vessels all kinds	327570	312571	385969	453584	372854	468410	587100	772623	894193	1063624	947738	1051467	1179246	1148434	1148771	988560

In the Return for 1859, it is possible that there may be discrepancy in the tonnage and number of boats, as compared with the Return made up at the Inspector eneral's Office. This difference may be accounted for by their having included Rafts, &c., in their Return, which are not included in my Table.

3rd—What is the present estimated Tonnage and average size of vessels engaged in the same trade? What proportion passes through the Welland Canal? and what proportion, from too great size, cannot pass?

Answers.—The Tonnage of the Steam and Sailing craft, from Montreal, upwards, is as follows, viz:

Above Welland Canal.

67	Paddle Wheel Steamers, capacity	41,171	Tons.
145	Propellers "	54,330	"
794	Sailing Vessels "	180,273	"
1,006		275,774	Tons.

Below Welland Canal.

63	Paddle Wheel Steamers, capacity	25,899	Tons.
52	Propellers "	12,874	"
371	Sailing Vessels "	76,552	"
486		115,325	Tons.

Above Welland Canal that can pass through it.

8	Paddle Wheel Steamers, capacity	1,384	Tons.
60	Propellers "	6,368	"
671	Sailing Vessels "	132,410	"
739		140,162	Tons.

Below Welland Canal, that can pass through it.

6	Paddle Wheel Steamers, capacity	1,872	Tons.
47	Propellers "	10,722	"
371	Sailing Vessels "	76,552	"
424		89,146	Tons.

Above the Welland Canal, that cannot pass through it.

69	Paddle Wheel Steamers, capacity	39,787	Tons.
85	Propellers "	47,962	"
123	Sailing Vessels "	47,863	"
267		135,612	Tons.

Below the Welland Canal, that cannot pass through it.

57	Paddle Wheel Steamers, capacity	24,027	Tons.
5	Propellers "	2,152	"
0	Sailing Vessels "	0,000	"
62		26,179	Tons.

Steam and Sailing Craft upon all the Lakes, that can not be passed thro' the Welland Canal

116	Paddle Wheel Steamers, capacity	63,814	Tons.
90	Propellers "	50,114	"
123	Sailing Vessels "	47,863	"
329		161,791	Tons.

Steam and Sailing Craft upon all the Lakes, that can be passed through the Welland Canal.

14	Paddle Wheel Steamers, capacity	- - - - - - - -	3,256 Tons.
107	Propellers "	- - - - - - - -	17,090 "
1042	Sailing Craft "	- - - - - - - -	208,962 "
1,163			229,308 Tons.

Of the following Steamers and Propellers, the number used as Tugs and Ferry Boats, and not capable of carrying freight, is, as near as can be ascertained:

15	Paddle Wheel Steamers, capacity	- - - - - - - -	1,910 Tons.
63	Propellers "	- - - - - - - -	5,968 "
78			7,878 Tons.

4th.—Have the receipts of Produce from the Upper Lakes at Oswego or other American Ports on Lake Ontario, kept pace, as regards progressive increase, with those of Buffalo? And can you supply any returns shewing the difference?"

Answer.—With regard to this Query, I have no data, to afford the information required.

5th.—" If not, whether do you attribute the falling off mainly to the inadequate size of the Welland Canal, or to the enlargement of the Erie Canal and the additional Railway facilities afforded for Transit from Lake Erie to the Sea Board, or have not facilities to an equal extent been created from Ports on Lake Ontario?"

Answer.—The Trade from the Upper to the Lower Lake Ports has been considerable, with fluctuations arising in a great measure through the failures of Crops and business embarrassments.

The falling off of the Trade to Oswego, if any, (of which, in the absence of statistical information, I am not aware) may be in some degree attributable to the present size of the " Welland Canal," and the enlargement of the " Erie Canal," and to the " additional Railway facilities afforded for Transit to the Sea Board." It is quite probable that were the dimensions of the Welland Canal increased, the facilities rendered thereby would give more advantage for shipment from the Upper to the Lower Lake Ports, and there is not the least doubt that, were these advantages afforded, the Trade of the Welland Canal would be considerably increased.

Whether this increase of Trade would justify the expenditure, consequent upon the enlargement, is a matter requiring much consideration.

In my humble opinion, with the present existing facilities, the outlay would not be justifiable, although I am aware that this matter is much agitated by persons who do not calculate the cost or its results, only caring that the expenditure be made.

My reasons for arriving at this conclusion are formed from the present capabilities of the Welland Canal (which are sufficient for not less than three-fold the traffic that has yet been passed through it,) and the existing advantages for the transportation from the West to the Ocean by the numerous Railways, of which there are five in Canada, and four in the United States competing for this freight. They have also the additional advantage of being able to carry freight during closed navigation; Whilst, during the season of navigation, they, (the Railways) are rivals to the Canals, carrying freights at ruinously low rates.

Through the business operations of the Railways, in carrying off the produce, while the navigation is suspended, there is not sufficient Surplus, (as formerly), to afford remunerative freights, consequently, the shipping interests have become much depressed, thereby causing injury to the Canal Trade.

In Addition, the business facilities afforded Western Shippers of Produce by other Routes, has a tendency to divert the trade from the Welland Canal. As it is impossible for the Government to render such assistance (as Cash advance) to Shippers of produce passing through the Welland Canal, consequently its Trade will continue to be injured so long as such advances are upon Produce transported by other Routes. It is believed that the facilities for transportation from "Ports on Lake Ontario" are adequate, with the exception of the depth of water on the Mitre Sills of the St. Lawrence Canal Locks, which should be increased to not less than 10 feet.

6th.—What proportion of the Produce is carried in vessels too large to pass through the Welland Canal.

Answer.—Have no data to afford the information.

7th.—Do you consider the Welland Railway calculated to attract the Trade to the Basin of Lake Ontario, or that the facilities it affords render less necessary the enlargement of the Welland Canal?"

Answer.—Through the facilities afforded, and referred to in answer to Query No. 5, I consider that the Welland Railway will attract trade to the Basin of Lake Ontario, and also as stated in annswer to said Query, I do not consider the enlargement of the Welland Canal necessary.

8th.—Looking at the class of Vessels now in use, and likely hereafter to be employed on Lakes Superior, Huron and Michigan, in connection with the direct Atlantic Trade, to what size and depth would you consider the Canal ought to be enlarged?"

In Answer to this Query, as I have already stated, I do not consider that the enlargement of the Welland Canal ought to be made. But should it be decided otherwise, there are two important points to be settled before the dimensions of the enlargement can be determined; whether it is to be made so as to admit the passage of the largest class of Paddle wheel Steamers, or for Propellers.

If for the former, the Locks should be of the same size as those at the Sault St. Marie Canal, 350 feet in length, 75 feet wide, and not less than 12½ feet depth of water on the Mitre Sill.

As this class of Steamers are more properly suited for a passenger than a freight trade, the adoption of Locks of a size suitable for propeller navigation appears the more advisable, and would, I think, be the better calculated dimensions for the enlargement. This point being determined, the capacity of the Locks need not necessarily be greater than 250 feet long, 50 feet wide, with 12½ feet depth of water on the Mitre Sill.

By the establishment of these dimensions there would be but 3 propellers now in existence, above the Canal, that could not be passed by, their lengths being each 270, 265, and 240 feet.

I have the honor to be, Sir,

Your obdt. servt.,

S. D. WOODRUFF.

N.

The following Table furnishes the dates of Departure and Arrival, length of Voyage, number of Passengers and Cargo, inwards and outwards by the Steamers of the Montreal Ocean Steamship Company's line for the season of 1859, by the St. Lawrence.

STEAMSHIP.	Left Liverpool.	Arrived at Quebec.	Passage. days	Passage. hours	No. of Passengers.	Cargo inwards. Tons Weight	Cargo inwards. Tons Meast.	Total.	Left Quebec.	Arrived at Liverpool.	Passage. days	Passage. hours	No. of Passengers.	Barrels of Ashes.	Barrels of Flour.	Bushels of Grain.	Kegs of Butter.	Standard Deals.	Tons of India Rubber Goods	Barrels of Pork &c.	Tons of Sundries.
North Briton	Apl 20	May, 2	11	15	184	356	747	1103	M'y, 14	M'y, 25	11	2	201	783	......	....	......	175	19	......	25
Anglo Saxon	" 27	" 9	11	16	99	122	136	258	" 21	June, 1	10	11	94	650	......	548	......	Deals carried every voyage but two. We have no return of the exact quantity.	7	......	28
Nova Scotian	May, 4	" 16	12	11	119	362	167	529	" 28	" 8	11	0	358	990	......	....	......		17	498	45
North American	" 11	" 22	11	7	114	285	137	422	June, 4	" 14	10	3	125	688	......	8774	......		8	......	20
Hungarian	" 18	" 30	12	2	105	364	161	525	" 11	" 20	9	6	156	870	......	....	......		16	978	45
Indian	" 25	June, 6	12	8	92	393	263	656	" 18	" 29	10	6	114	631	......	....	94		15	74	25
North Briton	June, 1	" 11	10	8	134	321	186	507	" 25	July, 5	10	6	77	429	......	....	107		13	......	250
Anglo Saxon	" 8	" 18	10	5	115	536	233	769	July, 2	" 11	9	5	99	354	3000	....	98		7	49	160
Nova Scotian	" 15	" 27	12	7	125	503	207	710	" 9	" 19	10	3	127	294	......	....	......		18	......	50
North American	" 22	July, 3	11	6	120	200	195	395	" 16	" 27	10	14	99	660	......	....	......		16	......	30
Hungarian	" 29	" 8	9	14	133	139	367	506	" 23	Aug., 1	9	6	101	293	......	....	86		36	......	60
Indian	July, 6	" 18	11	17	126	275	315	590	" 30	" 10	11	4	82	1005	2000	5000	......		14	......	25
North Briton	" 13	" 24	10	23	185	223	353	576	Aug., 6	" 16	10	1	51	650	......	6680	......		15	290	35
Anglo Saxon	" 20	" 30	10	6	147	166	634	800	" 13	" 23	9	6	58	435	2000	....	65		15	......	48
Nova Scotian	" 27	Aug., 7	11	7	158	93	847	940	" 20	" 30	9	21	79	151	......	....	79		23	......	30
North American	Aug., 3	" 13	10	6	140	195	771	966	" 27	Sept., 6	10	2	74	638	3139	....	199		14	......	35
Hungarian	" 10	" 20	10	9	211	221	899	1120	Sept., 3	" 13	9	18	108	528	2256	....	457		18	211	35
Indian	" 17	" 29	11	15	141	301	826	1127	" 10	" 20	9	16	102	363	4915	148	412		19	......	30
North Briton	" 24	Sep., 5	11	21	233	136	672	808	" 17	" 29	11	8	71	423	247	1840	488		15	22	40
Anglo Saxon	Sep., 1	" 12	11	15	200	269	582	851	" 24	Oct., 4	10	3	101	484	449	6870	644		11	80	25
Nova Scotian	" 7	" 22	14	6	179	166	492	658	Oct. 1	" 14	10	8	102	389	1518	4788	491		20	......	30
North American	" 14	" 25	11	6	100	246	398	644	" 8	" 20	10	0	87	352	3869	4974	574		14	......	10
Hungarian	" 21	Oct., 1	10	8	117	244	371	615	" 15	" 27	11	18	144	693	2224	6944	324		14	16	4
Indian	" 28	" 10	11	17	130	392	305	698	" 22	Nov., 3	11	22	88	903	2601	8304	156		22	......	5
North Briton	Oct., 5	" 16	11	5	118	274	293	567	" 29	" 11	13	5	121	417	2105	22124	317		16	......	4
Anglo Saxon	" 12	" 23	10	11	96	231	273	504	Nov., 5	" 15	10	7	102	695	574	20030	31		10	......	35
Nova Scotian	" 19	" 29	10	7	121	96	211	307	" 12	" 23	10	17	128	429	1526	7728	......		8	14	60
North American	" 26	Nov., 7	10	20	99	190	348	538	" 19	" 30	10	18	101	789	1880	8202	246		7	......	23
	28 voy., avr.		11	5	3644	7300	11389	18689	28 voy., avr.		10	10	3150	15986	34303	112954	4868		427	2232	1212

ERRATI , PAGE 32.

Ottawa Survey.—**The Estimated cost of the Ottawa Canal, exclusive of deepening the Lachine Canal and Lake St. Louis, apart from Land Damages and Expenses, is $12,057.680.**